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◦ K E Y

OF

SOLUTIONS TO THE WRITTEN EXAMPLES

IN

BRADBURY'S

PRACTICAL ARITHMETIC.

BY

WILLIAM F. BRADBURY, A.M.,

HEAD MASTER OF THE CAMBRIDGE LATIN SCHOOL. AUTHOR OF
A SERIES OF MATHEMATICAL TEXT BOOKS.



THOMPSON, BROWN, AND CO.

BOSTON.

CHICAGO.

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University Press :
JOHN WILSON AND SON, CAMBRIDGE, U.S.A.

PREFACE.

EDUCATION is a *drawing out* of the intellectual powers. No study is better adapted to this *drawing out* than Arithmetic. But to make it most useful for this purpose, neither book nor teacher should do for a pupil what he can do for himself. This Key, therefore, is not designed for the use of pupils.

In the multiplicity of their labors some teachers have not the time to perform the numerical work required for a complete solution of the problems given to a class; some desire assurance that their own work is correct; comparatively few find at once the shortest and best methods of solving the various problems; for such this Key has been prepared.

To teach pupils to take the shortest road in the solution of problems is one of the most difficult, as well as one of the most important things for the teacher of Arithmetic to do. Most seem bound to walk with great labor up hill, only for the sake of walking down again. In this Key great care has been taken to find the shortest method of solution.

The principle of cancellation has been introduced wherever it was possible without making the process obscure.

Much useless labor has been saved, especially in working the examples given in the Appendix, by removing perfect powers from under the radical sign. (See pp. 153–155, Exs. 604, 606, 611, 614, 622. If this process cannot be made plain to the pupil, he can work the example without removing such factors.)

In most of the examples the answers have been given in accordance with the last clause of Note 2, Art. 318; though generally the sign $+$ or $-$ has been attached when the exact answer was greater or less than the given answer. In a few instances the answers have been left with mills and decimals of mills.

It has not been thought best to give the numerical work in the simpler problems; for example, in the four Simple Rules, many in Common Fractions, in Decimals, the Metric System, Square and Cube Root.

W. F. B.

CAMBRIDGE, MASS., Jan. 1, 1880.

KEY OF SOLUTIONS

TO THE

WRITTEN EXAMPLES IN BRADBURY'S PRACTICAL ARITHMETIC.

NOTATION.

Page 6 - 7.

| | | |
|-------------|----------------|---------------------|
| 26. 638 | 37. 946514925 | 47. 4016007.04 |
| 27. 356 | 38. 6015007400 | 48. 17017017.017 |
| 28. 653 | 39. 5651406 | 49. 1001001100.01 |
| 29. 563 | 40. 74000000 | 50. 11000011000.011 |
| 30. 365 | 41. 63014700 | 51. 16006600.06 |
| 31. 651 | 42. 2.5 | 52. 1001001001.01 |
| 32. 1651 | 43. 0.52 | 53. 10010010010.1 |
| 33. 42554 | 44. 60.04 | 54. 555555.055 |
| 34. 816200 | 45. 0.204 | 55. 1600.16 |
| 35. 6104276 | 46. 800.014 | 56. 2020.02 |
| 36. 306502 | | |

ADDITION.

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| | | |
|-----------|-------------|--------------|
| 29. 988 | 39. 388 | 52. 458.56 |
| 30. 1227 | 43. 1849 | 53. 77379 |
| 31. 955 | 44. 17.99 | 54. 65248 |
| 32. 9279 | 45. 18752 | 55. 52.579 |
| 33. 8999 | 46. 168.997 | 56. 135437 |
| 34. 11636 | 47. 1669 | 57. 9212.662 |
| 35. 99885 | 48. 2331 | 58. 105171 |
| 36. 9774 | 49. 2379.7 | 59. 2456.137 |
| 37. 7665 | 50. 191955 | 60. 42.436 |
| 38. 8649 | 51. 48043 | 61. 427.458 |

| | | |
|------------------|-------------------|-----------------|
| 62. \$379.52 | 80. 2254.22 | 99. 482818 |
| 63. 197008 | 81. 520.062 | 100. 514698 |
| 64. \$206.78 | 83. 6899168 | 101. 485044 |
| 65. 131.501 | 84. \$504.20 | 102. 515826 |
| 66. 94279 | 85. \$61.95 | 103. 519845 |
| 67. 195061 | 86. \$7608 | 104. 590037 |
| 68. 286900 | 87. 1524553000 | 105. 589891 |
| 69. 214362 | 88. \$84571886 | 106. 468785 |
| 70. \$230.846 | 89. \$6506 | 107. 365 |
| 71. 53442 | 90. 43758310.901 | 108. 33648 |
| 72. 1054.46 | 91. \$18828.84 | 109. 27420 |
| 73. 77347 | 92. \$574.05 | 110. \$10110.20 |
| 74. 1743 | 93. \$2454.63 | 111. 319171 |
| 75. 889.596 | 94. \$10477 | 112. \$31762 |
| 76. 84788. | 95. 66465 sq. m. | 113. \$27468867 |
| 77. 31116 | 96. 121000 sq. m. | 114. 43221746 |
| 78. 83619 | 97. 4700745 | 115. \$1828.40 |
| 79. 84000500.206 | 98. 13922000 | 116. 1995 |

SUBTRACTION.

Page 21 - 26.

| | | |
|-------------|--------------|---------------|
| 24. 1512 | 41. 20304.73 | 56. 8865.881 |
| 25. 6261 | 42. 83355 | 57. 6623052 |
| 26. 5021 | 43. 4181046 | 58. 675.686 |
| 27. 1440 | 44. 1112.081 | 59. 6408360 |
| 28. 4112 | 46. 2817 | 60. 2552 |
| 29. 3201 | 47. 1128 | 61. 46601 |
| 30. 5310 | 48. 515977 | 62. 31.3 |
| 31. \$1412 | 49. 1.724 | 63. 3981 |
| 32. 284556 | 50. 15.803 | 64. 232 |
| 33. \$2264 | 51. 50.766 | 65. 1001 |
| 37. 354.167 | 52. 118 | 66. 2906 |
| 38. 4248657 | 53. 843.51 | 67. 787.914 |
| 39. 88.996 | 54. 35249 | 68. 5966.9286 |
| 40. 1310174 | 55. 5357 | 69. \$81.68 |

| | | |
|---------------|-----------------|-----------------------|
| 70. \$1788.41 | 79. \$787.45 | 88. \$277.77 |
| 71. 8319.794 | 80. 449 | 89. 13758.06 |
| 72. 3485.166 | 81. 349000 | 90. \$177.26 |
| 73. 5714.87 | 82. 4692197.934 | 91. 195.543 |
| 74. 1846.935 | 83. 240 | 92. \$125.77 |
| 75. 1060.061 | 84. \$7271.69 | 93. 779 |
| 76. 9.994 . | 85. 1906521 | 94. 146.882 |
| 77. 0.39 | 86. \$3593.40 | 95. 92760000 m. |
| 78. \$17.77 | 87. 45558897 | 96. 4. Rem.11920sq.m. |

MISCELLANEOUS EXAMPLES.

| | | |
|-----------------|----------------|----------------|
| 97. 186 | 101. 202 | 105. \$10075 |
| 98. 1717 m. | 102. \$1815.56 | 106. \$1969499 |
| 99. \$4.16 | 103. 44075 | 107. 32218478 |
| 100. 385 sq. m. | 104. \$15.10 | 108. 49940856 |

MULTIPLICATION.

Page 31-38.

| | | |
|----------------|-----------------|-------------------|
| 19. 25812 | 47. 19558595 | 69. 792369569000 |
| 20. 188802 | 48. 10664.372 | 70. 3794.4 |
| 21. 431712 | 49. 84597978 | 71. 677760 |
| 23. 69978592 | 50. 2336 | 72. 19041 |
| 29. 7066836168 | 51. \$1258 | 73. 15880580 |
| 30. 8854620071 | 52. 3053 m. | 76. 2937600000 |
| 31. 3765330 | 53. 2814 | 77. 9039155000000 |
| 32. 14806800 | 56. 89657 | 80. 61543497600 |
| 33. 4401335 | 57. 84396000 | 81. 5621859600 |
| 34. 4078098 | 58. 36274800 | 82. 245108.5 |
| 40. 12474.72 | 59. 43782000 | 83. 3414.96 |
| 41. 2893704 | 60. 470 | 84. 3139972 |
| 42. 3140228 | 61. 6890000 | 85. \$1227.45 |
| 43. 6141.72 | 62. 9846000 | 86. \$104 |
| 44. 3655211 | 63. 8469700000 | 87. \$473.86 |
| 45. 3197775 | 64. 87954000000 | 88. \$266 |
| 46. 59807396 | 68. 25468765200 | 89. \$1425 |

| | | |
|----------------------|----------------|------------------|
| 90. 9250 | 92. \$21517.75 | 94. 670968000 m. |
| 91. 593237410016.256 | 93. 68400 m. | 95. 307734.24 |

MISCELLANEOUS EXAMPLES.

| | | |
|------------------|-----------------|---------------|
| 96. 148118.52 | 106. 103615 lb. | 115. \$574.15 |
| 97. \$2533.50 | 107. 192875 lb. | 118. 2319 |
| 98. \$489 | 108. \$30613 | 119. 525 |
| 99. \$842.40 | 109. 60384 | 120. 7542 |
| 100. \$1046358 | 110. 2100 | 121. 543 |
| 101. 40352.2 ft. | 111. \$845.25 | 122. 2765 |
| 102. 2236735 | 112. \$1359 | 123. 147 |
| 103. \$576 | 113. \$180 | 124. 2765 |
| 104. \$92 | 114. \$112.50 | 125. 6045 |
| 105. \$520 | | |

DIVISION.

Page 42-54.

| | Rem. | | Rem. | | Rem. |
|--------------|------|--------------|------|---------------|----------|
| 29. 462.18 | | 64. 4258 | 86 | 83. 71 | |
| 30. 10969039 | | 65. 6222 | 60 | 84. 97 | |
| 31. 9162.103 | | 66. 1688 | 44 | 85. 83 | |
| 33. 14.865 | | 67. 26.841+ | | 86. 19 m. | |
| 34. 1189 | | 68. 2667 | 130 | 87. \$251 | |
| 35. 8574 | | 69. 97 | 1.3 | 89. 27640 | 3 |
| 36. 193.09 | | 70. 757 | 177 | 90. 947 | 63 |
| 37. 10405 | | 71. 1.504+ | | 92. 78 | 30652143 |
| 38. 14.303 | | 72. 12091 | 29 | 93. 5.63 | |
| 42. 28823 | 2 | 73. 15733 | 2863 | 95. 9.648 | |
| 43. 5786 | 3 | 74. 87108047 | 2502 | 97. 13 | 3365 |
| 47. 94772.8 | | 75. 94.496+ | | 99. 211 | 2427 |
| 48. 246.685 | | 76. 18.878+ | | 101. 300 | 9999 |
| 49. 19553.25 | | 77. 29.741+ | | 102. 2010 | 7080 |
| 51. 94 | | 79. 8765 a. | | 103. 10865 | 25821 |
| 52. 456 | | 80. \$500 | | 104. \$6.50 | |
| 53. 66 | | 81. 23 | | 105. \$157.13 | |
| 63. 6768 | 59 | 82. 24 | | 106. 4 | 1230 ft. |

MISCELLANEOUS EXAMPLES.

| | | | |
|----------------|------------------|---------------|-----------|
| 107. 15 m. | 114. 3367 | 122. \$3.11 + | 134. 3 |
| 108. 12 | 115. 5 | 123. 75 | 135. 1400 |
| 109. 18.545 + | 116. 9 | 127. 439 | 136. 25 |
| 110. \$8987.50 | 117. 5 | 128. 47 | 137. 78 |
| 111. 9 | 118. 21 | 129. 875 | 138. 140 |
| 112. { \$1800 | 119. 3800 | 131. 15 | 139. 756 |
| { \$2.81 + | 120. 16 | 132. 6 | 140. 0 |
| 113. 5 | 121. \$3112.66 + | 133. 2358 | |

MISCELLANEOUS EXAMPLES.

Page 57-59.

| | | |
|-----------------|---------------------|---------------------|
| 30. 48112 | 41. \$31104 | 50. 47 |
| 31. \$407.50 | 42. 714 | 51. 691904 |
| 32. 21875 | 43. { 529471 | 52. \$1196 |
| 33. 447 | { 1426796 | 53. 4; \$3 |
| 34. \$404 | 44. \$57.51 | 54. \$409.50 gained |
| 35. \$11212.50 | 45. \$7781 | 55. 3; 8095 |
| 36. 1999787.951 | 46. 288; \$5200 | 56. 26; 540 |
| 37. \$3969.50 | 47. \$806.50 gained | 57. 4; 7800 |
| 38. 2286 | 48. { 8 | 58. \$7.05 |
| 39. \$22.25 | { 7893 sq. m. rem. | 59. 487 |
| 40. 813 | 49. 37 | |

FACTORING.

Page 62-63.

$$\begin{array}{r} (9.) \quad 5 \overline{) 735} \\ \quad \underline{3) 147} \\ \quad \quad \underline{7) 49} \\ \quad \quad \quad 7 \end{array}$$

Ans. 3, 5, 7, 7

$$\begin{array}{r} (10.) \quad 2 \overline{) 9800} \\ \quad \underline{2) 4900} \\ \quad \quad \underline{2) 2450} \\ \quad \quad \quad \underline{5) 1225} \\ \quad \quad \quad \quad \underline{5) 245} \\ \quad \quad \quad \quad \quad \underline{7) 49} \\ \quad \quad \quad \quad \quad \quad 7 \end{array}$$

Ans. 2, 2, 2, 5, 5, 7, 7

$$\begin{array}{r} (11.) \quad 3 \overline{) 441} \\ \quad \underline{3) 147} \\ \quad \quad \underline{7) 49} \\ \quad \quad \quad 7 \end{array}$$

Ans. 3, 3, 7, 7

$$\begin{array}{r}
 (12.) \ 5) \ 315 \\
 \underline{3) \ 63} \\
 \underline{3) \ 21} \\
 \underline{7}
 \end{array}$$

Ans. 3, 3, 5, 7

$$\begin{array}{r}
 (13.) \ 2) \ 1320 \\
 \underline{2) \ 660} \\
 \underline{2) \ 330} \\
 \underline{3) \ 165} \\
 \underline{5) \ 55} \\
 \underline{11}
 \end{array}$$

Ans. 2, 2, 2, 3, 5, 11

$$\begin{array}{r}
 (14.) \ 2) \ 1728 \\
 \underline{2) \ 864} \\
 \underline{2) \ 432} \\
 \underline{2) \ 216} \\
 \underline{2) \ 108} \\
 \underline{2) \ 54} \\
 \underline{3) \ 27} \\
 \underline{3) \ 9} \\
 \underline{3}
 \end{array}$$

Ans. 2, 2, 2, 2, 2, 2, 3, 3, 3

$$\begin{array}{r}
 (15.) \ 2) \ 1600 \\
 \underline{2) \ 800} \\
 \underline{2) \ 400} \\
 \underline{2) \ 200} \\
 \underline{2) \ 100} \\
 \underline{2) \ 50} \\
 \underline{5) \ 25} \\
 \underline{5}
 \end{array}$$

Ans. 2, 2, 2, 2, 2, 2, 5, 5

$$\begin{array}{r}
 (16.) \ 2) \ 8424 \\
 \underline{2) \ 4212} \\
 \underline{2) \ 2106} \\
 \underline{3) \ 1053} \\
 \underline{3) \ 351} \\
 \underline{3) \ 117} \\
 \underline{3) \ 39} \\
 \underline{13}
 \end{array}$$

Ans. 2, 2, 2, 3, 3, 3, 13

$$\begin{array}{r}
 (17.) \ 2) \ 4284 \\
 \underline{2) \ 2142} \\
 \underline{3) \ 1071} \\
 \underline{3) \ 357} \\
 \underline{7) \ 119} \\
 \underline{17}
 \end{array}$$

Ans. 2, 2, 3, 3, 7, 17

$$\begin{array}{r}
 (18.) \ 2) \ 8364 \\
 \underline{2) \ 4182} \\
 \underline{3) \ 2091} \\
 \underline{17) \ 697} \\
 \underline{41}
 \end{array}$$

Ans. 2, 2, 3, 17, 41

$$\begin{array}{r}
 (19.) \ 2) \ 7698 \\
 \underline{3) \ 3849} \\
 \underline{1283}
 \end{array}$$

Ans. 2, 3, 1283

$$\begin{array}{r}
 (20.) \ 2) \ 1682 \\
 \underline{29) \ 841} \\
 \underline{29}
 \end{array}$$

Ans. 2, 29, 29

$$\begin{array}{r}
 (21.) \ 5) \ 2585 \\
 \underline{11) \ 517} \\
 \underline{47}
 \end{array}$$

Ans. 5, 11, 47

GREATEST COMMON DIVISOR.

Page 65 - 67.

(34.) $24 = 2 \times 2 \times 2 \times 3$

$40 = 2 \times 2 \times 2 \times 5$

$64 = 2 \times 2 \times 2 \times 2 \times 2 \times 2$

Ans. $2 \times 2 \times 2 = 8$

(35.) In trying to see what numbers can be omitted in the solution (see Note to Ex. 34), we find 15 is contained in every one. Hence, Ans. 15.

(36.) $25 = 5 \times 5$

$45 = 3 \times 3 \times 5$

$70 = 2 \times 5 \times 7$

Ans. 5

(37.) $24 = 2 \times 2 \times 2 \times 3$

$36 = 2 \times 2 \times 3 \times 3$

$64 = 2 \times 2 \times 2 \times 2 \times 2 \times 2$

Ans. $2 \times 2 = 4$

(38.) $24 = 2 \times 2 \times 2 \times 3$

$88 = 2 \times 2 \times 2 \times 11$

Ans. $2 \times 2 \times 2 = 8$

(39.) $45 = 3 \times 3 \times 5$

$75 = 3 \times 5 \times 5$

Ans. $3 \times 5 = 15$

(40.) $136 = 2 \times 2 \times 2 \times 17$

$184 = 2 \times 2 \times 2 \times 23$

$216 = 2 \times 2 \times 2 \times 3 \times 3 \times 3$

Ans. $2 \times 2 \times 2 = 8$

NOTE. In the operations below, the quotients are omitted, and also the curved lines separating divisors from dividends.

| | |
|--------|-----|
| (42.) | 784 |
| 426 | 426 |
| 358 | 358 |
| 68 | 340 |
| 54 | 18 |
| 14 | 14 |
| 12 | 4 |
| Ans. 2 | 4 |
| | 0 |

| | |
|-------|---------|
| (43.) | 1878 |
| 1215 | 1215 |
| 663 | 663 |
| 552 | 552 |
| 444 | 111 |
| 108 | 108 |
| 108 | 3, Ans. |
| 0 | |

| | | | |
|------------|-----------|---------|----------|
| (44.) | 1870 | (45.) | 3696 |
| 1071 | 1071 | 1440 | 2880 |
| 799 | 799 | 816 | 816 |
| <u>272</u> | 544 | 624 | 624 |
| 255 | 255 (15 | 576 | 192 |
| Ans. 17 | 17 | Ans. 48 | 192 |
| | <u>85</u> | | <u>0</u> |
| | 85 | | |
| | <u>0</u> | | |

| | | | |
|------------|----------|----------|----|
| (46.) | 6237 | (48.) | 48 |
| 2520 | 5040 | 42 | 42 |
| 2394 | 1197 | 42 | 6 |
| <u>126</u> | 1134 | <u>0</u> | |
| 126 | 63, Ans. | | |
| <u>0</u> | | | |

6 is contained in 216 and 234. Hence, Ans. 6.

(49.) NOTE. As 210 is contained in 420, we have to find G. C. D. of 154 and 210.

| | |
|------------|----------|
| | 210 |
| 154 | 154 |
| <u>112</u> | 56 |
| 42 | 42 |
| <u>42</u> | 14, Ans. |
| 0 | |

| | | | |
|-----------|----------|--------|----------|
| (51.) | 60 | | 140 |
| 36 | 36 | 12 | 132 |
| 24 | 24 | 8 | 8 |
| <u>12</u> | 24 | Ans. 4 | 8 |
| | <u>0</u> | | <u>0</u> |

LEAST COMMON MULTIPLE.

Page 68-71.

| | | | |
|-------|--------------------|-------|--|
| (60.) | $22 = 2 \times 11$ | (61.) | $36 = 2 \times 2 \times 3 \times 3$ |
| | $33 = 3 \times 11$ | | $40 = 2 \times 2 \times 2 \times 5$ |
| | $55 = 5 \times 11$ | | $48 = 2 \times 2 \times 2 \times 2 \times 3$ |

$2 \times 3 \times 5 \times 11 = 330$, Ans. $2 \times 2 \times 2 \times 2 \times 3 \times 3 \times 5 = 720$, Ans.

NOTE. It will shorten the process to take the greatest of the given numbers and multiply it by the factors that it does not contain.

(62.) (Omit 20. See Note 1.)

$$30 = 2 \times 3 \times 5$$

$$50 = 2 \times 5 \times 5$$

$$80 = 2 \times 2 \times 2 \times 2 \times 5$$

$$80 \times 3 \times 5 = 1200, \text{ Ans.}$$

$$(63.) 45 = 3 \times 3 \times 5$$

$$75 = 3 \times 5 \times 5$$

$$75 \times 3 = 225, \text{ Ans.}$$

$$(64.) 35 = 5 \times 7$$

$$50 = 2 \times 5 \times 5$$

$$75 = 3 \times 5 \times 5$$

$$90 = 2 \times 3 \times 3 \times 5$$

$$90 \times 5 \times 7 = 3150, \text{ Ans.}$$

$$(65.) 36 = 2 \times 2 \times 3 \times 3$$

$$48 = 2 \times 2 \times 2 \times 2 \times 3$$

$$64 = 2 \times 2 \times 2 \times 2 \times 2 \times 2$$

$$64 \times 3 \times 3 = 576, \text{ Ans.}$$

$$(66.) 72 = 2 \times 2 \times 2 \times 3 \times 3$$

$$80 = 2 \times 2 \times 2 \times 2 \times 5$$

$$84 = 2 \times 2 \times 3 \times 7$$

$$96 = 2 \times 2 \times 2 \times 2 \times 2 \times 3$$

$$96 \times 3 \times 5 \times 7 = 10080, \text{ Ans.}$$

$$(67.) 42 = 2 \times 3 \times 7$$

$$49 = 7 \times 7$$

$$72 = 2 \times 2 \times 2 \times 3 \times 3$$

$$88 = 2 \times 2 \times 2 \times 11$$

$$88 \times 3 \times 3 \times 7 \times 7 = 38808, \text{ Ans.}$$

$$(68.) 20 = 2 \times 2 \times 5$$

$$24 = 2 \times 2 \times 2 \times 3$$

$$36 = 2 \times 2 \times 3 \times 3$$

$$36 \times 2 \times 5 = 360, \text{ Ans.}$$

$$(71.) 5) 45, \quad 210$$

$$3) 9, \quad 42$$

$$3, \quad 14$$

$$5 \times 3 \times 3 \times 14 = 630, \text{ Ans.}$$

$$(72.) 3) 9, \quad 50, \quad 75$$

$$5) 3, \quad 50, \quad 25$$

$$5) 3, \quad 10, \quad 5$$

$$3, \quad 2, \quad 1$$

$$3 \times 5 \times 5 \times 3 \times 2 = 450, \text{ Ans.}$$

$$(73.) 2) 5, \quad 6, \quad 8$$

$$5, \quad 3, \quad 4$$

$$(2 \times 5 \times 3 \times 4) \text{ quarts} = 120 \text{ qts.}, \text{ Ans.}$$

$$\begin{array}{r} (74.) \ 5) \ 75, \ 90 \\ \quad 3) \ 15, \ 18 \\ \quad \quad 5, \ 6 \end{array}$$

$$5 \times 3 \times 5 \times 6 = 450, \text{ Ans.}$$

$$(76.) \ 4 \times 9 \times 29 = 1044, \text{ Ans.}$$

$$(78.) \text{ G. C. D. of 36 and 45 is 9. } (79.) \text{ G. C. D. of 44 and 66 is 22.}$$

$$(36 \div 9) \times 45 = 180, \text{ Ans. } (44 \div 22) \times 66 = 132, \text{ Ans.}$$

CANCELLATION.

Page 72.

$$(1.) \ \frac{2}{11} \times \frac{44}{11} \times \frac{8}{16} \times \frac{7}{7} = 2, \text{ Ans. } (82.) \ \frac{2}{10} \times \frac{40}{10} \times \frac{18}{18} \times \frac{13}{13} \times \frac{8}{16} = 36, \text{ Ans.}$$

$$(83.) \ \frac{47}{7} \times \frac{7}{7} \times \frac{14}{16} \times \frac{21}{3} = 47, \text{ Ans. } (84.) \ \frac{5}{2} \times \frac{25}{437} \times \frac{874}{5} \times \frac{8}{5} \times \frac{5}{5} = 1, \text{ Ans.}$$

$$(85.) \ \frac{4}{27} \times \frac{108}{3} \times \frac{17}{16} \times \frac{9}{17} \times \frac{4}{17} = 3, \text{ Ans.}$$

$$(86.) \ \frac{11}{7986} = 11, \text{ Ans.}$$

$$(87.) \ \frac{4}{30} \times \frac{3}{2} \times \frac{8}{6} \times \frac{9}{12} = 1, \text{ Ans.}$$

$$\begin{array}{r} (88.) \quad 2) 180 \\ \quad \quad 2) 90 \\ \quad \quad 3) 45 \\ \quad \quad 3) 15 \\ \quad \quad \quad \underline{5} \end{array}$$

Ans. 2, 2, 3, 3, 5

$$\begin{array}{r} (89.) \quad 2) 462 \\ \quad \quad 3) 231 \\ \quad \quad \quad 7) 77 \\ \quad \quad \quad \quad \underline{11} \end{array}$$

Ans. 2, 3, 7, 11

$$\begin{array}{r} (90.) \quad 2) 996 \\ \quad \quad 2) 498 \\ \quad \quad 3) 249 \\ \quad \quad \quad \underline{83} \end{array}$$

Ans. 2, 2, 3, 83

(See Notes, p. 65.)

$$\begin{array}{r} (91.) \quad 2) 2916 \\ \quad \quad 2) 1458 \\ \quad \quad 3) 729 \\ \quad \quad 3) 243 \\ \quad \quad 3) 81 \\ \quad \quad 3) 27 \\ \quad \quad 3) 9 \\ \quad \quad \quad \underline{3} \end{array}$$

Ans. 2, 2, 3, 3, 3, 3, 3, 3

$$(94.) \quad 24 - 18 = 6, \text{ Ans.}$$

$$\begin{array}{l} (95.) \quad 35 = 5 \times 7 \\ \quad \quad 40 = 2 \times 2 \times 2 \times 5 \\ \quad \quad \quad \text{Ans. } 5 \end{array}$$

$$\begin{array}{r} (96.) \quad \quad \quad 1215 \\ \quad \quad 315 \\ \quad \quad \underline{270} \\ \text{Ans. } 45 \end{array}$$

$$\begin{array}{r} 1215 \\ \quad \quad 945 \\ \quad \quad \underline{270} \\ \quad \quad \underline{270} \end{array}$$

$$(97.) \quad 20 = 2 \times 2 \times 5 \quad (\text{See Notes, p. 68})$$

$$32 = 2 \times 2 \times 2 \times 2 \times 2 \quad (98.) \quad 75 = 3 \times 5 \times 5$$

$$48 = 2 \times 2 \times 2 \times 2 \times 3 \quad 90 = 2 \times 3 \times 3 \times 5$$

$$48 \times 2 \times 5 = 480, \text{ Ans.}$$

$$90 \times 5 = 450, \text{ Ans.}$$

$$\begin{array}{r} (99.) \\ \quad \quad 2 \quad \quad 3 \\ \frac{44 \times 5 \times 9}{11 \times 10 \times 3} = 6, \text{ Ans.} \end{array}$$

$$\begin{array}{r} (100.) \\ \quad \quad 41 \quad \quad 3 \quad \quad 3 \\ \frac{615 \times 24 \times 15}{25 \times 8 \times 27} = 41, \text{ Ans.} \end{array}$$

$$\begin{array}{r} (101.) \\ \quad \quad 9 \quad \quad 3 \quad \quad 2 \\ \frac{3177 \times 18 \times 34}{17 \times 54 \times 353} = 6, \text{ Ans.} \end{array}$$

$$\begin{array}{r} (102.) \\ \quad \quad 251 \quad \quad 7 \\ \frac{4518 \times 343 \times 8}{16 \times 63 \times 49} = 251, \text{ Ans.} \end{array}$$

$$(103.)$$

$$\begin{array}{r} \quad \quad 12 \quad \quad \quad 6 \\ \frac{1728 \times 757 \times 84}{144 \times 1514 \times 7} = 72, \text{ Ans.} \end{array}$$

$$(104.)$$

$$\begin{array}{r} \quad \quad 3 \quad \quad \quad 5 \\ \frac{369 \times 365 \times 14}{123 \times 219 \times 56} = 5, \text{ Ans.} \end{array}$$

COMMON FRACTIONS.

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$$7. \ 25 \overline{) 150} = \frac{1}{6}, \text{ Ans.}$$

$$8. \ 7 \overline{) 490} = \frac{7}{8}, \text{ Ans.}$$

$$9. \ 2 \overline{) 82} = \frac{41}{89}, \text{ Ans.}$$

$$10. \ 47 \overline{) 94} = \frac{2}{3}, \text{ Ans.}$$

$$11. \ 25 \overline{) 75} = \frac{3}{13}, \text{ Ans.}$$

$$12. \ 14 \overline{) 42} = \frac{3}{59}, \text{ Ans.}$$

$$13. \ 42 \overline{) 84} = \frac{2}{3}, \text{ Ans.}$$

$$14. \ 105 \overline{) 315} = \frac{3}{4}, \text{ Ans.}$$

$$15. \ 165 \overline{) 495} = \frac{3}{5}, \text{ Ans.}$$

$$16. \ 54 \overline{) 162} = \frac{3}{11}, \text{ Ans.}$$

$$17. \ 63 \overline{) 441} = \frac{7}{13}, \text{ Ans.}$$

$$18. \ 231 \overline{) 924} = \frac{4}{7}, \text{ Ans.}$$

$$19. \ 1728 \overline{) 1728} = \frac{1}{5}, \text{ Ans.}$$

$$20. \ 814 \overline{) 814} = \frac{1}{2}, \text{ Ans.}$$

$$21. \ 19 \overline{) 209} = \frac{11}{13}, \text{ Ans.}$$

$$22. \ 23 \overline{) 2346} = \frac{102}{203}, \text{ Ans.}$$

$$34. \ 1\frac{2}{3}\frac{2}{3}$$

$$35. \ 1\frac{0}{8}$$

$$36. \ 7\frac{2}{2}$$

$$37. \ 1\frac{3}{1}\frac{1}{2}$$

$$38. \ 1\frac{3}{2}$$

$$39. \ 8\frac{1}{8}$$

$$40. \ 3\frac{4}{1}\frac{7}{8}$$

$$41. \ 1\frac{0}{0}\frac{0}{0}\frac{3}{3}$$

$$42. \ 2\frac{9}{1}\frac{2}{1}$$

$$43. \ 2\frac{4}{3}\frac{1}{1}$$

$$44. \ 2\frac{5}{9}\frac{0}{9}\frac{6}{6}$$

$$45. \ 2\frac{0}{3}\frac{2}{1}$$

$$46. \ 1\frac{2}{3}\frac{0}{1}\frac{1}{3}$$

$$51. \ 1\frac{3}{9}$$

$$52. \ 4\frac{1}{1}\frac{5}{5}$$

$$53. \ 2\frac{1}{2}\frac{5}{5}$$

$$54. \ 5\frac{8}{1}\frac{5}{5}$$

$$55. \ 2\frac{5}{8}\frac{6}{6}$$

$$56. \ 4\frac{1}{1}\frac{3}{3}\frac{8}{8}$$

$$57. \ 10\frac{4}{1}\frac{7}{7}$$

$$58. \ 21\frac{8}{3}\frac{7}{7}$$

$$59. \ 34\frac{3}{2}\frac{2}{2}$$

$$60. \ 21\frac{4}{1}\frac{4}{4}$$

$$61. \ 7$$

$$62. \ 19\frac{2}{2}\frac{8}{8}\frac{8}{8}$$

$$74. \ 1\frac{0}{4}\frac{5}{5}, 1\frac{4}{4}\frac{0}{0}, 1\frac{0}{0}\frac{0}{0}$$

$$75. \ 3\frac{4}{4}\frac{4}{4}, 5\frac{0}{0}\frac{4}{4}, 3\frac{0}{0}\frac{0}{0}$$

| | | |
|--|--------------------------|---------------------------|
| 76. $\frac{12}{30}, \frac{10}{30}, \frac{15}{30}, \frac{18}{30}$ | 103. $\frac{237}{30}$ | 129. $\frac{34}{30}$ |
| 77. $\frac{30}{30}, \frac{30}{30}, \frac{30}{30}, \frac{30}{30}$ | 104. $\frac{270}{30}$ | 130. $\frac{100}{30}$ |
| 78. $\frac{312}{30}, \frac{315}{30}, \frac{318}{30}, \frac{321}{30}$ | 105. $\frac{180}{30}$ | 131. $\frac{370}{30}$ |
| 79. $\frac{304}{30}, \frac{304}{30}, \frac{304}{30}, \frac{304}{30}$ | 106. $\frac{213}{30}$ | 132. $\frac{13}{30}$ |
| 80. $\frac{38}{30}, \frac{38}{30}, \frac{38}{30}, \frac{38}{30}$ | 107. $\frac{155}{30}$ | 133. $\frac{610}{30}$ |
| 81. $\frac{308}{30}, \frac{308}{30}, \frac{308}{30}$ | 108. $\frac{1110}{30}$ | 134. $\frac{17}{30}$ |
| 82. $\frac{1478}{30}, \frac{1478}{30}, \frac{1478}{30}$ | 109. $\frac{77}{30}$ | 135. $\frac{303}{30}$ |
| 83. $\frac{408}{30}, \frac{408}{30}, \frac{408}{30}, \frac{408}{30}$ | 110. $\frac{1301}{30}$ | 136. $\frac{1}{30}$ |
| 84. $\frac{108}{30}, \frac{108}{30}, \frac{108}{30}, \frac{108}{30}$ | 111. $\frac{76}{30}$ | 137. $\frac{1}{30}$ |
| 85. $\frac{2111}{30}, \frac{2111}{30}, \frac{2111}{30}, \frac{2111}{30}$ | 112. $\frac{1408}{30}$ | 138. $\frac{1}{30}$ |
| 86. $\frac{48}{30}, \frac{48}{30}, \frac{48}{30}, \frac{48}{30}$ | 114. $\frac{4917}{30}$ | 140. $\frac{104813}{30}$ |
| 87. $\frac{72}{30}, \frac{72}{30}, \frac{72}{30}, \frac{72}{30}$ | 115. $\frac{290933}{30}$ | 141. $\frac{1368170}{30}$ |
| 100. $\frac{124}{30}$ | 116. $\frac{963213}{30}$ | 142. $\frac{56593}{30}$ |
| 101. $\frac{1328}{30}$ | 117. $\frac{13291}{30}$ | 143. $\frac{2911}{30}$ |
| 102. $\frac{1318}{30}$ | 118. $\frac{2343}{30}$ | |

158. $\frac{215}{30}$

159. $\frac{413}{30}$

$$161. \frac{\frac{46}{17} \times \frac{25}{23}}{\frac{5}{17}} = \frac{10}{17}, \text{ Ans.}$$

$$162. \frac{\frac{36}{125} \times \frac{75}{84}}{\frac{5}{7}} = \frac{9}{35}, \text{ Ans.}$$

$$163. \frac{\frac{25}{44} \times \frac{8}{75}}{\frac{11}{3}} = \frac{2}{33}, \text{ Ans.}$$

$$164. \frac{\frac{33}{54} \times \frac{12}{44}}{\frac{9}{3} \times \frac{4}{2}} = \frac{1}{6}, \text{ Ans.}$$

$$165. \frac{\frac{24}{35} \times \frac{28}{84}}{\frac{8}{3}} = \frac{8}{35}, \text{ Ans.}$$

$$166. \frac{\frac{144}{365} \times \frac{73}{288}}{\frac{5}{2}} = \frac{1}{10}, \text{ Ans.}$$

$$167. \frac{\frac{25}{3} \times \frac{12}{5}}{\frac{4}{5}} = 20, \text{ Ans.}$$

$$168. \frac{\frac{130}{11} \times \frac{22}{3}}{\frac{2}{3}} = 86\frac{2}{3}, \text{ Ans.}$$

171. $\frac{14113}{30}$

172. $\frac{127364}{30}$

173. $\frac{11419377}{30}$

174. $\frac{117473}{30}$

$$175. \frac{3}{11} \times \frac{5}{8} \times \frac{11}{12} \times \frac{41}{5} = \frac{41}{32} = 1\frac{9}{32}, \text{ Ans.}$$

$$176. \frac{1}{2} \times \frac{2}{3} \times \frac{3}{4} \times \frac{4}{5} \times \frac{5}{6} \times \frac{6}{7} \times \frac{7}{8} \times \frac{8}{9} = \frac{1}{9}, \text{ Ans.}$$

$$177. \frac{3}{8} \times \frac{4}{7} \times \frac{5}{11} \times \frac{7}{5} = \frac{3}{22}, \text{ Ans.}$$

$$178. \frac{5}{7} \times \frac{6}{5} \times \frac{13}{17} \times \frac{17}{12} \times \frac{8}{13} = \frac{4}{7}, \text{ Ans}$$

$$180. 111$$

$$181. \$14\frac{7}{8}$$

$$182. \$1331\frac{1}{4}$$

$$183. 481\frac{1}{8} \text{ m.}$$

$$184. \$\frac{63}{8} \times \frac{179}{9} = \$148\frac{1}{2}, \text{ Ans.}$$

$$205. 3\frac{1}{2}$$

$$206. 1\frac{17}{85}$$

$$208. \frac{52}{189} \times \frac{126}{13} = 2\frac{2}{3}, \text{ Ans.}$$

$$209. \frac{177}{814} \times \frac{11}{3} = \frac{59}{74}, \text{ Ans.}$$

$$210. \frac{139}{1807} \times \frac{4859}{13} = 139, \text{ Ans.}$$

$$211. \frac{144}{896} \times \frac{896}{1728} = \frac{1}{12}, \text{ Ans.}$$

$$212. \frac{125}{7} \times \frac{1}{14} = 1\frac{3}{14}, \text{ Ans.}$$

$$213. \frac{535}{3} \times \frac{5}{81} = 11\frac{23}{81}, \text{ Ans.}$$

$$214. \frac{1037}{7} \times \frac{7}{6} = 172\frac{5}{6}, \text{ Ans.}$$

$$215. \frac{6}{7} \times \frac{7}{1037} = \frac{6}{1037}, \text{ Ans.}$$

$$217. 4929\frac{1}{2}$$

$$218. 796\frac{84}{131}$$

$$219. \frac{161}{6} \times \frac{1}{42} = \frac{23}{36}, \text{ Ans.}$$

$$220. \frac{7}{8} \times \frac{16}{15} \div \left(\frac{4}{11} \times \frac{33}{49} \right) = \frac{7}{8} \times \frac{16}{15} \times \frac{11}{4} \times \frac{49}{33} = 37\frac{1}{3}, \text{ Ans.}$$

$$224. \frac{31}{5} \times \frac{2}{171} = \frac{62}{855}, \text{ Ans.}$$

$$229. \frac{43}{8} \times \frac{3}{47} = \frac{129}{188}, \text{ Ans.}$$

$$225. \frac{23}{5} \times \frac{10}{69} = \frac{2}{3}, \text{ Ans.}$$

$$230. \frac{28}{5} \times \frac{5}{3} = 9\frac{1}{3}, \text{ Ans.}$$

$$226. \frac{76}{9} \times \frac{3}{38} = \frac{2}{3}, \text{ Ans.}$$

$$231. \frac{2}{5} \times \frac{3}{7} \times \frac{7}{5} \times \frac{5}{19} = \frac{2}{19}, \text{ Ans.}$$

$$227. \frac{35}{8} \times \frac{8}{11} = 3\frac{1}{11}, \text{ Ans.}$$

$$232. \frac{23}{5} \times \frac{9}{40} = 12\frac{3}{8}, \text{ Ans.}$$

$$228. \frac{29}{8} \times \frac{4}{27} = \frac{29}{54}, \text{ Ans.}$$

$$233. \frac{18}{1} \times \frac{3}{7} = 7\frac{1}{2}, \text{ Ans.}$$

$$234. \frac{3}{5} \times \frac{1}{3} \times \frac{7}{8} \times \frac{5}{4} \times \frac{3}{7} \times \frac{16}{5} \times \frac{4}{1} \times \frac{1}{2} = 1, \text{ Ans.}$$

$$235. \left(\frac{175}{4} \times \frac{2}{7} \right) c. = 12\frac{1}{2} c., \text{ Ans.}$$

$$236. \left(\frac{1129}{3} \times \frac{2}{31} \right) m. = 24\frac{1}{3} m., \text{ Ans.}$$

$$237. \left(\frac{3139}{4} \times \frac{2}{219} \right) h. = 28\frac{1}{3} h., \text{ Ans.}$$

295. 5068

296. $566\frac{1}{2}$

297. $\frac{103}{6} \times \frac{25}{3} = 143\frac{1}{3}$, Ans.

298. $\frac{3}{5} \times \frac{5}{7} \times \frac{11}{83} = \frac{33}{581}$, Ans.

299. $\frac{115}{8} \times \frac{5}{89} = \frac{575}{712}$, Ans.

300. $\frac{4}{5} \times \frac{2}{3} \times \frac{7}{8} \times \frac{15}{11} \times \frac{9}{8} \times \frac{4}{3} \times \frac{11}{5} \times \frac{12}{7} = 33$, Ans.

301. $\frac{7}{5} \times \frac{11}{3} \div \left(\frac{2}{3} \times \frac{1}{15}\right) = \frac{7}{5} \times \frac{11}{3} \times \frac{3}{2} \times \frac{15}{1} = 115\frac{1}{2}$, Ans.

302. $\frac{3}{4} \times \frac{2}{3} \times \frac{1}{7} \times \frac{9}{7} \times \frac{5}{2} \times \frac{1}{7} = \frac{45}{1372}$, Ans.

303. $\frac{7}{8} \times \frac{16}{19} \times \frac{11}{\frac{4}{2}} \times \frac{29}{\frac{33}{3}} = 11\frac{2}{19}$, Ans.

304. $18\frac{2}{7} \times \frac{3}{2} \times \frac{5}{3} \times \frac{2}{3} = 18\frac{2}{7}$, Ans.

305. $\frac{1}{5} \times \frac{6}{7} \times \frac{5}{2} \times \frac{7}{16} \times \frac{10}{3} = \frac{5}{8}$, Ans.

306. $\frac{1}{2} \times \frac{5}{7} \times \frac{59}{8} \times \frac{14}{295} = \frac{1}{8}$, Ans.

307. $\frac{2}{15} \times \frac{7}{28} \times \frac{5}{25} \times \frac{2}{8} \times \frac{9}{63} \times \frac{3}{55} = \frac{3}{11}$, Ans.

$$308. 6946\frac{1}{2} \text{ lb., Ans.}$$

$$309. 1048\frac{7}{8}, \text{ Ans.}$$

$$310. \$\frac{\cancel{45}^3}{1} \times \frac{470}{\cancel{5}} \times \frac{4}{\cancel{5}} = \$5640, \text{ Ans.}$$

$$311. \frac{\cancel{595}^{85}}{2} \times \frac{\cancel{6}^3}{\cancel{208}^{29}} = 8\frac{3}{8}, \text{ Ans.}$$

$$313. \$\frac{\cancel{80}}{1} \times \frac{3}{\cancel{16}} \times \frac{176}{\cancel{5}} = \$528, \text{ Ans.}$$

$$314. \$\frac{3}{16} \times \frac{1653}{7} = \$44\frac{31}{16}, \text{ Ans.}$$

$$315. \left(\frac{\cancel{60}^{15}}{1} \times \frac{75}{\cancel{4}} \times \frac{2}{59}\right) \text{ lb.} = 38\frac{8}{59} \text{ lb., Ans.}$$

$$316. \left(\frac{75}{1} \times \frac{67}{2}\right) \text{ c.} = 2512\frac{1}{2} \text{ c., Ans.}$$

$$317. \$\frac{151}{8} \times \frac{199}{4} = \$939\frac{1}{8}, \text{ Ans.}$$

$$318. \$\frac{\cancel{4340}^{140}}{1} \times \frac{\cancel{12000}^{15}}{\cancel{24800}^{31}} = \$2100, \text{ Ans.}$$

$$319. \$1383\frac{1}{8}, \text{ Ans.}$$

$$320. \frac{\cancel{2783}^{253}}{8} \times \frac{7}{\cancel{11}} = 221\frac{3}{8}, \text{ Ans.}$$

$$321. \frac{3}{8} - \frac{3}{8} = \frac{7}{24}. \quad 177\frac{1}{2} \text{ then is } \frac{7}{24} \text{ of the required number.}$$

$$\frac{\cancel{532}^{76}}{\cancel{3}} \times \frac{\cancel{24}^8}{\cancel{7}} = 608, \text{ Ans.}$$

322. If he lost $\frac{3}{8}$ he had $\frac{1}{8}$ left; if he found $\frac{1}{2}$ of what he lost, he found $\frac{1}{16}$; then he had $\frac{1}{8} + \frac{1}{16} = \frac{3}{16}$. \$735 is $\frac{3}{16}$ of what he had at first.

$$\frac{735}{\frac{3}{16}} \times \frac{8}{1} = \$840, \text{ Ans.}$$

$$323. \$ \frac{4200}{1} \times \frac{4}{3} \times \frac{5}{7} = \$4000, \text{ Ans.}$$

$$324. \$ \frac{15}{4} \times \frac{2}{3} \times \frac{3}{4} = \$4\frac{1}{2}, \text{ Ans.}$$

$$325. \$ \frac{2923}{1} \times \frac{2}{3} \times \frac{5}{8} = \$29230, \text{ Ans.}$$

$$326. \frac{15}{4} \times \frac{36}{5} \text{ bush.} = 27 \text{ bush., Ans.}$$

327. $\frac{2}{3} + \frac{1}{3} + \frac{1}{3} = \frac{4}{3}$. The whole, or $\frac{3}{3}$, minus $\frac{4}{3} = \frac{1}{3}$; 61 must therefore be $\frac{1}{3}$ of the whole. Hence, 210, Ans.

$$328. \left. \begin{array}{l} 159 \\ \$39\frac{1}{2} \end{array} \right\} \text{ Ans.}$$

$$329. \frac{8}{3} \times \frac{3}{2} \times \frac{6}{1} \times \frac{4}{3} = 32, \text{ Ans.}$$

330. Wife's share $\frac{1}{3}$; son's share $\frac{1}{2} \times \frac{2}{3} = \frac{1}{3}$; daughter's share $\{1 - (\frac{1}{3} + \frac{1}{3})\} \times \frac{1}{2} = \frac{1}{6}$. \$376 $\frac{1}{2}$ is then $\frac{1}{6}$ of the estate.
 $\$376\frac{1}{2} \times 12 = \$4513\frac{1}{2}, \text{ Ans.}$

$$331. \frac{9}{1} \times \frac{44}{3} \times \frac{4}{3} = 16, \text{ Ans.}$$

$$332. \frac{135}{8} \div \frac{15}{8} = 9, \text{ Ans.}$$

333. Wife received $\frac{1}{3}$; daughter received $\frac{2}{3} \times \frac{1}{3} = \frac{2}{9}$; son received $1 - (\frac{1}{3} + \frac{2}{9}) = \frac{4}{9}$. Difference between wife's and son's shares is $\frac{4}{9} - \frac{2}{9} = \frac{2}{9}$. \$2787 $\frac{1}{3}$ is $\frac{2}{9}$ of the whole estate.

| | | | | |
|----------|----------|---------------------------------|-----------------------|--------|
| Wife | received | \$2787 $\frac{1}{3} \times 3 =$ | \$8362 | } Ans. |
| Daughter | " | \$2787 $\frac{1}{3} \times 2 =$ | \$5574 $\frac{2}{3}$ | |
| Son | " | \$2787 $\frac{1}{3} \times 4 =$ | \$11149 $\frac{1}{3}$ | |

$$334. \$\frac{6283}{8} \times \frac{12}{7} \times \frac{8}{9} = \$1196\frac{1}{4}, \text{ Ans.}$$

$$335. \$\frac{9000}{1} \times \frac{3}{2} \times \frac{5}{12} = \$5625, \text{ Ans.}$$

336. $3 \div \frac{3}{4} = 4$; that is, the shadow is $\frac{1}{4}$ as long as the staff. Hence, $125\frac{1}{2} \text{ ft.} \div 4$, or $31\frac{3}{8} \text{ ft.}$, Ans.

337. The staff is 4 times the shadow. Hence, $31\frac{3}{8} \text{ ft.} \times 4$, or $125\frac{1}{2} \text{ ft.}$, Ans.

$$338. \$\frac{175}{4} \times \frac{8}{7} = \$50, \text{ Ans.} \quad 339. \frac{100}{1} \times \frac{5}{2} = 62\frac{1}{2}, \text{ Ans.}$$

$$340. \frac{98}{1} \times \frac{13}{154} \times \frac{3}{7} \times \frac{35}{4} = 31\frac{1}{4}, \text{ Ans.}$$

$$341. \begin{aligned} 50 &= 2 \times 5 \times 5 \\ 30 &= 2 \times 3 \times 5 & \$50 \times 3 \times 2 \times 2 &= \$600, \text{ Ans.} \\ 8 &= 2 \times 2 \times 2 \end{aligned}$$

$$342. \$\frac{7}{25} \times \frac{9}{7} \times \frac{5}{6} = \$\frac{3}{10}, \text{ Ans.}$$

343. He lost $\frac{2}{3}$; and $\frac{2}{3}$ is $\frac{2}{3}$ of $\frac{3}{8}$. Hence, $\frac{2}{3}$ of \$2250, or \$1500, Ans.

344. If he lost $\frac{3}{8}$, he had $\frac{5}{8}$ left; $\frac{3}{8}$ of his money plus \$117 make $\frac{5}{8}$ of the original sum; that is, $\frac{5}{8} - \frac{3}{8}$, or $\frac{1}{4}$, of his original sum is \$117.

$$\text{Hence, } \$\frac{117}{1} \times \frac{9}{13} = \$270, \text{ Ans.}$$

$$345. 3\frac{1}{4} \div 8\frac{1}{4} = \frac{22}{7} \times \frac{14}{121} = \frac{4}{11}, \text{ Ans.}$$

$$346. \$\frac{6500}{1} \times \frac{3}{5} \times \frac{2}{3} = \$2600. \text{ Made } \$150, \text{ Ans.}$$

$$347. \frac{1}{3} + \frac{1}{4} + \frac{2}{5} = \frac{47}{60}. \text{ Hence, } \$200 \text{ is } \frac{1}{60} \text{ of his estate.}$$

$$\$200 \times 60 = \$12000, \text{ Ans.}$$

$$348. \$41\frac{1}{2} \text{ is } \frac{3}{8} \text{ of his earnings.}$$

$$\$ \frac{165}{\frac{4}{2}} \times \frac{5}{3} \times \frac{2}{55} = \$2\frac{1}{2}, \text{ Ans.}$$

$$349. \frac{21}{2} \times \frac{3}{8} \times \frac{8}{5} = 6\frac{3}{5}, \text{ Ans.}$$

$$350. \$16\frac{1}{4} \div 2\frac{1}{2} \text{ is the price of one cord.}$$

$$\$74\frac{3}{4} \div \$ (16\frac{1}{4} \div 2\frac{1}{2}) = \frac{299}{4} \times \frac{4}{65} \times \frac{5}{2} = 11\frac{1}{2}, \text{ Ans.}$$

$$351. \left(\frac{10}{1} \times \frac{121}{\frac{4}{2}} \times \frac{6}{55} \right) c. = 33 c., \text{ Ans.}$$

$$352. \text{ If he saves } \frac{3}{4} \text{ he must spend } \frac{1}{4}.$$

$$\$ \frac{2231}{\frac{8924}{5}} \times \frac{7}{4} = \$3123\frac{3}{4}, \text{ Ans.}$$

353. He gained as much as he lost, $\frac{3}{8}$, and $\frac{1}{4}$ of his investment besides. Hence, \$834 $\frac{3}{8}$ is $(\frac{3}{8} + \frac{1}{4}) = \frac{5}{8}$ of what he put in.

$$\frac{\$417\frac{3}{8}}{\frac{5}{8}} \times \frac{20}{18} = \$1284, \text{ Ans.}$$

354. If he loses $\frac{1}{3}$, he has left $\frac{2}{3}$. Hence, \$1287 $\frac{1}{2}$ — \$542 $\frac{3}{8}$, or \$744 $\frac{5}{8}$, is $\frac{2}{3}$ of his investment, and twice his loss.

$$\begin{array}{r} \text{Investment } \$1117\frac{1}{2} \\ \text{Loss } \$372\frac{1}{2} \end{array} \} \text{ Ans.}$$

355. For all the rest he received \$37 $\frac{1}{2} \div \frac{3}{8} = \$\frac{75}{2} \times \frac{8}{3} = \100
 Number of barrels sold for \$100 = $100 \div 1\frac{3}{4} = 57\frac{1}{4}$.

$$25 + 57\frac{1}{4} = 82\frac{1}{4}, \text{ Ans.}$$

$$356. \$\frac{867}{4} \times \frac{2}{51} \times \frac{19}{2} = \$80\frac{3}{4}, \text{ Ans.}$$

$$357. \$\frac{1}{2} \times \frac{4}{3} \times \frac{151}{2} = \$50\frac{1}{3}, \text{ Ans.}$$

$$358. 55 \div (67\frac{5}{8} \div 9\frac{1}{4}) = \frac{55}{1} \times \frac{6}{407} \times \frac{37}{\frac{3}{2}} = 7\frac{1}{2}, \text{ Ans.}$$

$$359. \$\frac{84}{5} \times \frac{7}{48} \times \frac{48}{5} = \$23\frac{1}{3}, \text{ Ans.}$$

$$360. 147\frac{1}{2} \div (2\frac{3}{4} \div \frac{3}{4}) = \frac{184}{5} \times \frac{5}{13} \times \frac{3}{4} = 42\frac{1}{3}, \text{ Ans.}$$

$$361. 2\frac{1}{2} \div (8\frac{3}{4} \div 10\frac{3}{4}) = \frac{5}{2} \times \frac{5}{43} \times \frac{43}{4} = 3\frac{1}{4}, \text{ Ans.}$$

$$362. 27\frac{1}{2} \div (2\frac{1}{10} \div 6\frac{1}{2}) = \frac{55}{2} \times \frac{40}{91} \times \frac{13}{2} = 78\frac{1}{2}, \text{ Ans.}$$

$$363. \left\{ 21\frac{3}{8} \div \left(5\frac{3}{8} \div \frac{7}{9} \right) \right\} \text{ t.} = \left(\frac{45}{8} \times \frac{6}{55} \times \frac{7}{9} \right) \text{ t.} = \frac{3}{8} \text{ t. Ans.}$$

$$364. 81\frac{3}{7} \div (22\frac{3}{8} \div 7) = \frac{570}{7} \times \frac{5}{114} \times \frac{7}{1} = 25 \text{ Ans.}$$

$$365. 33\frac{1}{3} \div (10\frac{4}{7} \div 4\frac{2}{3}) = \frac{100}{3} \times \frac{7}{75} \times \frac{10}{25} = 13\frac{1}{3}, \text{ Ans.}$$

$$366. \$\frac{19}{8} \times \frac{18}{7} \times \frac{8}{19} = \$2\frac{1}{7}, \text{ Ans.}$$

$$367. 25\frac{1}{3} \div \left(2\frac{1}{4} \div \frac{3}{8} \right) = \frac{38}{3} \times \frac{4}{9} \times \frac{8}{3} = 4\frac{2}{3}, \text{ Ans.}$$

$$368. 487\frac{1}{5} \div \left(\frac{3}{5} \div \frac{2}{5} \right) = \frac{325}{2} \times \frac{5}{3} \times \frac{2}{5} = 325, \text{ Ans.}$$

369. $\frac{1}{4} + \frac{1}{8} \times \frac{3}{4} = \frac{1}{4} + \frac{3}{8} = \frac{5}{8}$. If he spent $\frac{3}{8}$, he had $\frac{5}{8}$ left.
Hence, \$5000 is $\frac{5}{8}$ of the estate. \$8000, Ans.

371. $\frac{1}{10} + \frac{1}{12} + \frac{1}{15} = \frac{1}{4}$. They can do $\frac{1}{4}$ of it in one day.
Hence, they can do the whole in 4 d., Ans.

372. $\frac{1}{10} + \frac{1}{12} = \frac{1}{6}$. They can do $\frac{1}{6}$ in one day. They can
do the whole in $1 \div \frac{1}{6}$ days, or 6 d., Ans.

$$373. \left\{ 1 \div \left(\frac{1}{10} + \frac{1}{15} \right) \right\} \text{ d.} = \left(1 \div \frac{1}{6} \right) \text{ d.} = 6 \text{ d., Ans.}$$

$$374. \left\{ 1 \div \left(\frac{1}{12} + \frac{1}{15} \right) \right\} \text{ d.} = \left(1 \div \frac{3}{20} \right) \text{ d.} = 6\frac{2}{3} \text{ d., Ans.}$$

375. C can do $\frac{1}{10} - \frac{1}{12}$, or $\frac{1}{30}$, in one day; therefore it will
take C 30 days to do it alone. B can do $\frac{1}{10} - \frac{1}{15}$, or $\frac{1}{30}$, in one
day; therefore it will take B 30 days to do it alone. A can do
 $\frac{1}{12} - \frac{1}{30}$, or $\frac{1}{20}$ in one day; therefore it will take A 20 days
to do it alone.

376. Paid $\$1\frac{2}{5}$ a pound; sold for $\$1\frac{1}{2}$ a pound; gained $\$1\frac{1}{2} - \$1\frac{2}{5}$, or $\$7\frac{1}{10}$, a pound. $693 \div 7\frac{1}{10}$ will be the number of pounds.

$$\frac{693}{1} \times \frac{10}{7} \times \frac{2}{495} = 24, \text{ Ans.}$$

$$377. \frac{301}{4} \div \frac{9}{4} = \frac{301}{4} \times \frac{4}{9} = 33\frac{2}{9}, \text{ Ans.}$$

$$378. \frac{3}{4} = \frac{90}{120}; \frac{7}{10} = \frac{84}{120}; \frac{31}{40} = \frac{93}{120}; \frac{41}{60} = \frac{82}{120}.$$

$$\text{Ans. } \frac{41}{60}, \frac{7}{10}, \frac{3}{4}, \frac{31}{40}.$$

$$379. \frac{167}{4} \div \left(\frac{121}{4} \div \frac{121}{3} \right) = \frac{167}{4} \times \frac{4}{3} = 55\frac{2}{3}, \text{ Ans.}$$

380. A mile in $22\frac{2}{3}$ minutes is $(60 \div 2\frac{2}{3})$ miles an hour, or $4\frac{1}{2}$ miles an hour.

$$\begin{aligned} & \frac{45}{17} \times \frac{3}{2} + \frac{15}{17} \times \frac{2}{3} \times \frac{17}{2} + \frac{15}{17} \times \frac{8}{1} \times \frac{136}{3} \\ & = 67\frac{1}{2} + 30 + 960 = 1057\frac{1}{2}, \text{ Ans.} \end{aligned}$$

$$381. \frac{29}{2} \times \frac{8}{1} \times \frac{1}{5} = \frac{116}{5} = 23\frac{1}{5}, \text{ Ans.}$$

382. L. C. M. of 66 and 1760 ?

$$66 = 2 \times 3 \times 11$$

$$1760 = 2 \times 2 \times 2 \times 2 \times 2 \times 5 \times 11$$

$$1760 \times 3 = \text{L. C. M.} \quad \text{Ans. Every 3 miles.}$$

383. ($2\frac{2}{3} \times \frac{1}{2} \times \frac{4}{3}$) miles 1 ton for \$1.

$$\left(\frac{278}{3} \times \frac{19}{2} \times \frac{4}{29} \times \frac{2}{57} \times \frac{261}{2}\right) \text{ miles} = 556 \text{ miles, Ans.}$$

$$384. \$\left(\frac{8}{5} - \frac{2}{3}\right) \times 365 = \$\frac{14}{15} \times 365 = \$340\frac{2}{3}, \text{ Ans.}$$

385. Policeman, a mile in 8 minutes, or (1760 ÷ 8) yards a minute, or 220 yards a minute. Thief, a mile in 10 minutes, or (1760 ÷ 10) yards a minute, or 176 yards a minute. Policeman gains upon the thief (220 - 176) yards a minute, or 44 yards a minute. (418 ÷ 44) minutes = 9½ minutes, Ans.

386. He was gone from home 10 h. 30 m. He was on the road 5 h. 30 m. As he rides twice as fast as he walks, he was riding ⅓ of the 5½ hours, or 1¾ hours.

$$\left(\frac{1}{2} \times \frac{1}{6}\right) \text{ miles} = 10\frac{1}{2} \text{ miles, Ans.}$$

DECIMALS.

Page 103-108.

| | |
|---------------------|---------------------|
| 13. 0.0718 | 34. 0.0009108027 |
| 14. 0.000009 | 35. 0.005162 |
| 15. 8.0000804 | 36. 0.0000000000884 |
| 16. 15080.004006 | 37. 421000 |
| 17. 1000.00000001 | 41. 0.503005 |
| 18. 70000000.000007 | 42. 140.608018 |
| 19. 16000.00014 | 43. 154.97 |
| 20. 8000000.0000018 | 44. 0.36 |
| 27. 156.915 | 45. 0.0065 |
| 28. 2325.96 | 46. 36.4 |
| 29. 0.0082824 | 47. 3.76 |
| 30. 0.0000204 | 48. 4.78 |
| 31. 19.9893954 | 49. 29176 |
| 32. 0.0000793098 | 50. 24800 |
| 33. 0.0248999064 | 51. 1125 |

| | | |
|--------------------------------|----------|--|
| 52. 0.01625 | | 74. $\frac{1}{8}$ |
| 53. 45 | | 75. $\frac{17}{100}$ |
| 54. 34.8 | 55. 0.48 | 76. $\frac{1}{5}$ |
| 56. 1.4166+ | | 77. $\frac{3}{8}, \frac{1}{4}, \frac{3}{4}, \frac{7}{8}, \frac{1}{80}$ |
| 57. 0.4866+ | | 78. $\frac{1}{10}, \frac{1}{8}, \frac{1}{4000}, \frac{1}{100}$ |
| 58. 1.5965+ | | 79. $\frac{2}{10}, \frac{3}{40}, \frac{1}{880}, \frac{1}{8000}$ |
| 60. 1767.5 | | 80. $\frac{7}{10}, \frac{1}{8000}, \frac{3}{8000}, \frac{2}{8000}$ |
| 61. 10000 | | 81. { 0.25, 0.6, 0.625, 0.416+, |
| 62. 0.00000355+ | | { 0.16, 0.53+ |
| 63. 330000 | | 82. 230.725 |
| 65. 0.375 | | 83. 393.0375 |
| 66. 0.3333+ | | 84. 289.7655 |
| 67. 0.428571+ | | 85. 980.5625 |
| 68. 0.4375 | | 86. 7843.41796875 |
| 69. 1.140625 | | 87. 17+ |
| 70. 2.40625 | | 88. 59.8+ |
| 71. 0.5833+ | | 89. 208.58+ |
| 72. { 0.5, 0.4, 0.375, 0.8125, | | 90. 37.75 |
| { 0.109375, 0.28, 0.34 | | 91. 102.99+ |

UNITED STATES MONEY.

Page 112-118.

| | |
|----------------|-------------------|
| 24. \$292.75 | 40. 81 |
| 25. \$534.93 | 41. 45 |
| 26. \$2208.50 | 42. 25 |
| 27. \$89974.08 | 43. \$204 |
| 28. \$15581.25 | 44. 3.5 |
| 29. \$3852.52 | 45. \$1.96 |
| 30. \$201.35 | 46. \$22.875 |
| 31. \$69.75 | 47. \$5.625 |
| 32. \$156.25 | 48. \$1.125 |
| 33. \$69.75 | 49. \$340.05 |
| 34. \$2812.50 | 50. \$50, gained. |
| 37. \$8.50 | 51. \$65.625 |
| 38. \$54.75 | 52. \$412.50 |

53. \$2022.16
 54. 13 c.
 55. 53 c.
 56. \$1862.25
 57. \$4250
 58. \$47
 59. \$16.25
 60. 11
 61. 6
 62. \$109.06 $\frac{1}{4}$
 63. \$494.88
 64. 16
 65. \$6851

66. 13 $\frac{1}{2}$
 67. 75
 68. \$0.50 ; \$50
 69. \$253.68 $\frac{3}{4}$
 70. \$4234.375
 71. \$62.50
 72. 67.75
 73. 67.75
 74. \$846.875, } gain.
 \$12.50, }
 75. \$233.59 $\frac{3}{8}$
 76. \$2.065
 77. \$492.61 $\frac{7}{8}$

(78.) \$8.50

$$87\frac{1}{2} \text{ c.} \times 3 = 2.625$$

$$8\frac{1}{2} \text{ c.} \times 24.5 = 2.0825$$

$$37\frac{1}{2} \text{ c.} \times 3 = 1.125$$

$$62\frac{1}{2} \text{ c.} \times 2 = 1.25$$

$$35 \text{ c.} \times 6 = 2.10$$

$$8 \text{ c.} \times 15 = 1.20$$

$$22 \text{ c.} \times 4 = 0.88$$

$$\text{Ans. } \$19.7625$$

$$(80.) \$3.75 \times 27 = \$101.25$$

$$53.50 \times 13 = 695.50$$

$$23.25 \times 15 = 348.75$$

$$\text{Ans. J. H. Dr. to J. P. } \$1145.50$$

$$(82.) \$0.42 \times 3 = \$1.26$$

$$0.33 \times 2 = 0.66$$

$$0.28 \times 2 = 0.56$$

$$0.25 \times 4 = 1.00$$

$$0.12 \times 2 = 0.24$$

$$0.20 \times 3 = 0.60$$

$$0.10 \times 7 = 0.70$$

$$0.15 \times 5 = 0.75$$

$$(81.) 10 \text{ c.} \times 25 = \$2.50$$

$$12 \text{ c.} \times 40 = 4.80$$

$$13 \text{ c.} \times 6 = 0.78$$

$$28 \text{ c.} \times 8 = 2.24$$

$$11 \text{ c.} \times 4 = 0.44$$

$$40 \text{ c.} \times 2 = 0.80$$

$$\text{A. J. P. Dr. to J. F. \& Co. } \$11.56$$

$$\text{J. S. S. Dr. to M., J. \& Co. } \$5.77$$

$$\text{M., J. \& Co. Dr. to J. S. S. } 3.45$$

$$\text{Balance due M., J. \& Co. } \$2.32$$

(83.)

MR. SAMUEL FARWELL

IN ACC'T WITH H. J. THOMPSON & Co.

Dr.

Cr.

| 1895. | | | | 1895. | | | |
|---------|-----------------------|-------|----|---------|-------------------------|-------|----|
| Feb. 14 | 9½ lbs. paint @ 12 c. | \$ 1 | 14 | March 7 | 3 rolls paper @ 8 c. | \$ 0 | 24 |
| " " | 10 rolls paper " 20 " | 2 | 00 | " " | 5 " " " 10 " | " | 50 |
| " " | 28 " " " 8 " | 2 | 24 | " " | 5 yds. border " 6 " | " | 30 |
| " " | 44 " " " 10 " | 4 | 40 | | | \$ 1 | 04 |
| " " | 4 " " " 25 " | 1 | 00 | | | | |
| " " | 34 yd. border " 6 " | 2 | 04 | | | | |
| " " | 58 " " " 2 " | 1 | 16 | | | | |
| " " | 66 " " " 1 " | | 66 | | | | |
| | | \$ 14 | 64 | | Bal. due H. J. T. & Co. | \$ 13 | 60 |

(84.)

July 2, 1895.

MR. JAMES FOX,

To M. J. HOPKINS Dr.

| | | | |
|-------------------------------|----------------|-------|----|
| 8 tons furnace coal..... | @ \$ 5.25..... | \$ 42 | 00 |
| 6 " stove "..... | " 5.50..... | 33 | 00 |
| ½ cord pine wood..... | " 6.50..... | 3 | 25 |
| ½ " hard "..... | " 8.50..... | 4 | 25 |
| Putting in coal, 14 tons..... | " 0.25..... | 3 | 50 |
| | | \$ 86 | 00 |

(85.)

Sept. 27, 1895.

MR. WILLIAM MALLOY,

To STEPHEN LEAVITT Dr.

| | | | |
|------------------------------|--------------|-------|----|
| 10 lb. Paris white..... | @ 5 c..... | \$ 0 | 50 |
| 2 " glue..... | " 25 "..... | | 50 |
| 1 whitewash brush..... | | 5 | 00 |
| 12 lb. tenpenny nails..... | " 5 "..... | | 60 |
| 5 " eight "..... | " 5 "..... | | 25 |
| 3 dozen screws..... | " 7 "..... | | 21 |
| 3 pair brass butts..... | " 20 "..... | | 60 |
| 16 yd. border..... | " 12 "..... | 1 | 92 |
| ½ gallon spirits..... | " 50 "..... | | 25 |
| 12½ lb. Beymer lead..... | " 11½ "..... | 1 | 47 |
| | | \$ 11 | 30 |
| Deduct on border, 16 yd..... | " 2 "..... | | 32 |
| Balance due..... | | \$ 10 | 98 |

(86.)

Jan. 3, 1895.

MR. GEORGE HORNER,

To JOHN ROBINSON Dr.

| | | | |
|--------|-------------------------------|--------------|----------|
| 1895. | | | |
| Jan. 3 | 25 pairs laced shoes.....@ | \$ 3.50..... | \$ 87 50 |
| " " | 15 " kid slippers....." | 1.25..... | 18 75 |
| " " | 20 " ladies' boots....." | 3.25..... | 65 00 |
| " " | 30 " men's "....." | 2.25..... | 67 50 |
| " " | 35 " boys' "....." | 1.75..... | 61 25 |
| " " | 20 " ladies' slippers....." | 2.50..... | 50 00 |
| " " | 20 " men's "....." | 1.65..... | 33 00 |
| " " | 25 " children's rubbers....." | 0.50..... | 12 50 |
| " " | 45 " ladies' "....." | 0.65..... | 29 25 |
| " " | 50 " men's overshoes....." | 1.37½..... | 68 75 |
| | Truckage..... | | 1 00 |
| | | | \$494 50 |
| | Discount..... | | 5 00 |
| | | | \$489 50 |

Received payment,

JOHN ROBINSON.

METRIC SYSTEM.**Page 120-133.**

18. 14.05

22. 84070

19. 73.007

23. 217.015

20. 184.87

24. 3.527015

21. 718000.004

25. 47.08004

(38.)

(39.)

(40.)

7.24

17000.

7.18

0.185

18.

0.417

34000.

4.17

Ans. 6.763 m

17.35

0.18

Ans. 34024.775 m

4430.

(43.)

Ans. 21452.35 m

426.72

426.72

(41.)

(42.)

249.936

18000

2.17

116.738

18

1.13

111.25

Ans. 17982 m

Ans. 1.04 m

Ans. 1331.364 m

$$44. (1331.364 \div 5200) \text{ h.} = 0.256 + \text{ h., or } \frac{1}{4} + \text{ h., Ans.}$$

$$45. 173880 \div 6.3 = 27600, \text{ Ans.}$$

$$46. 4.8 \times 8 \times 18 = 691.2, \text{ Ans.}$$

| | | |
|---------------------|------------------|-----------------------------|
| 49. 137000009 | 67. 55.055004 | 82. \$ 876.56 $\frac{1}{4}$ |
| 50. 43000000.000025 | 68. 0.078786065 | 90. \$ 48.44 |
| 51. 1314.02 | 69. 18.478015 | 91. \$ 0.52 |
| 58. 30.6 | 70. 9167.000008 | 92. \$ 0.06 $\frac{1}{4}$ |
| 59. 51 | 75. 1.13 | 94. 90 |
| 60. \$ 2.50 | 76. 1.322 + m | 95. 2.604 + m |
| 61. \$ 800 | 77. 22.78 | 107. 1820 |
| 62. \$ 27.285 | 78. 62.5 | 108. \$ 877.50 |
| 63. 280500 | 79. 27.53608 | 109. \$ 2.52 |
| 64. 28000 | 80. \$ 299.01725 | 110. 7.121 |
| 65. \$ 78.975 | 81. 103125 | |

$$112. (1.6 \times 0.75 \times 0.4) \text{ cu m} = 480 \text{ cu dm}$$

480 cu dm of water weigh 480 K

$$480 \text{ " " marble " } 480 \text{ K} \times 2.7 = 1296 \text{ K, Ans.}$$

$$113. (2.5 \times 0.3 \times 0.16 \times 19.3) \text{ K} = 2.316 \text{ K, Ans.}$$

$$114. (30 \times 0.2 \times 0.2 \times 7.8) \text{ K} = 9.36 \text{ K, Ans.}$$

$$115. (40 \times 3 \times 2.5 \times 0.8) \text{ K} = 240 \text{ K, Ans.}$$

$$116. \$ 0.30 \times (32.5 \times 20 \times 0.03 \times 11.4) = \$ 66.69, \text{ Ans.}$$

$$117. (12 \times 1.03) \text{ K} = 12.36 \text{ K, Ans.}$$

118. 25 l of milk ought to weigh $(25 \times 1.03) \text{ K}$, or 25.75 K ;
as it weighs only 25.5, it is *not* pure.

$$119. 154 \text{ K} - 11.2 \text{ K} = 142.8 \text{ K}$$

$$(142.8 \div 0.835) \text{ l} = 171\frac{3}{7} \text{ l, Ans.}$$

$$120. 12000, \text{ Ans.}$$

$$121. 1.2567, \text{ Ans.}$$

| (122.) | (123.) | (124.) |
|----------------------------------|---------------------------------------|------------------------------------|
| 125 | 25060 | 2000 |
| 1706 | 18.315 | 1862.15 |
| 71 | 16.05 | Ans. $\overline{137.85} \text{ l}$ |
| 3 | 0.07 | |
| Ans. $\overline{1905} \text{ m}$ | Ans. $\overline{25094.435} \text{ K}$ | |

$$\begin{array}{r}
 (125.) \\
 910 \\
 280.31 \\
 \hline
 \text{Ans. } 629.69 \text{ Hl}
 \end{array}$$

$$\begin{array}{r}
 (126.) \\
 1728 \\
 3125 \\
 \hline
 8640 \\
 3456 \\
 1728 \\
 5184 \\
 \hline
 \text{Ans. } 5400000 \text{ g} = 5.4 \text{ T}
 \end{array}$$

$$\begin{array}{r}
 (127.) \\
 687500 \\
 51.2 \\
 \hline
 1375000 \\
 687500 \\
 3437500 \\
 \hline
 \text{Ans. } 35200000.0 \text{ mm} = 35.2 \text{ Km}
 \end{array}$$

$$\begin{array}{r}
 (128.) \quad 15 \overline{) 120000} \\
 \hline
 \text{Ans. } 8000
 \end{array}$$

$$\begin{array}{r}
 (129.) \quad 172\cancel{00} \overline{) 120400\cancel{00}} \\
 \hline
 \text{Ans. } 700 \text{ g}
 \end{array}$$

$$\begin{array}{r}
 (130.) \quad 9\cancel{0} \overline{) 27000\cancel{0}} \\
 \hline
 \text{Ans. } 3000
 \end{array}$$

$$\begin{array}{r}
 (131.) \quad 47621 \overline{) 32000000} \\
 \hline
 \text{Ans. } 671.9+ \text{ mm}
 \end{array}$$

$$\begin{array}{l}
 132. \text{ A cubic decimeter of silver} = 10.5 \text{ K} \\
 10500 \div 5 = 2100, \text{ Ans.}
 \end{array}$$

$$133. (40 \times 4) \text{ sq dm} = 160 \text{ sq dm, Ans.}$$

$$\begin{array}{l}
 134. (1.25 \times 0.72 \times 0.4) \text{ cu m} = 0.36 \text{ cu m. If it were water} \\
 \text{it would therefore weigh } 0.36 \text{ T. } 1 \div 0.36 = 2\frac{2}{3}, \text{ Ans.}
 \end{array}$$

$$135. \$ (75.6 \times 2.5) = \$189, \text{ Ans.}$$

$$136. (3150 \times 45) \text{ g} = 141.75 \text{ K, Ans.}$$

$$\begin{array}{l}
 137. (2 \times 1.5 \times 1.75) \text{ cu m} = 5.25 \text{ cu m.} \\
 5.25 \text{ T} = 5250 \text{ K, Ans.}
 \end{array}$$

$$\begin{array}{l}
 138. \text{ Ans. } \left\{ \begin{array}{l} \text{1st, Water } 11500 \text{ K} \\ \text{2d, Milk } (11500 \times 1.03) \text{ K} = 11845 \text{ K.} \end{array} \right.
 \end{array}$$

$$139. \$ (2530 \times 0.17) = \$430.10, \text{ Ans.}$$

$$140. 7.975 \text{ l, Ans.}$$

$$141. (253.2 \times 1.03) = 260.796, \text{ Ans.}$$

$$142. 25 \text{ liters of water} = 25 \text{ K.}$$

$$\text{Alcohol, } (25 \times 0.835) \text{ K} = 20.875 \text{ K. Ans. Impure.}$$

$$143. 108 \text{ T} = 108000 \text{ K.}$$

$$\text{Water, } 108000 \text{ K} = 108000 \text{ cu dm}$$

$$\text{Iron, } (108000 \div 7.2) \text{ cu dm} = 15000 \text{ cu dm, Ans.}$$

$$144. (8 \times 5 \times 3 \times 8.8) \text{ g} = 1056 \text{ g, Ans.}$$

$$145. \text{ Ans. } \begin{cases} \text{1st, } (25 \times 15 \times 7.5) = 2812.5 \\ \text{2d, } \qquad \qquad \qquad 2.8125 \end{cases}$$

$$146. \text{ Ans. } \begin{cases} \text{Copper, } \frac{4}{5} (1723.4) \text{ g} = 984.8 \text{ g} \\ \text{Zinc, } \quad \frac{3}{5} (1723.4) \text{ g} = 738.6 \text{ g} \end{cases}$$

$$147. (50 \times 0.3 \times 0.4 \times 7.8) \text{ K} = 46.8 \text{ K, Ans.}$$

$$148. (327 \div 1.03) = 317.476-$$

COMPOUND NUMBERS.

REDUCTION.

Page 144-159.

$$\begin{array}{rcl} (77.) & 18 \text{ bush. } 3 \text{ pk. } 7 \text{ qt. } 1 \text{ pt.} & (78.) \quad 60) 1577048 \text{ sec.} \\ & \begin{array}{r} 4 \\ \hline 75 \\ 8 \\ \hline 607 \\ 2 \\ \hline 1215 \end{array} & \begin{array}{r} 60) 26284 \text{ m. } 8 \text{ sec.} \\ 24) 438 \text{ h. } 4 \text{ m.} \\ 7) 18 \text{ d. } 6 \text{ h.} \\ \hline 2 \text{ wk. } 4 \text{ d.} \end{array} \\ & 1215 \text{ pt., Ans.} & \text{Ans. } 2 \text{ wk. } 4 \text{ d. } 6 \text{ h. } 4 \text{ m. } 8 \text{ sec.} \end{array}$$

$$\begin{array}{r}
 (79.) \\
 20^{\circ} 25' 30'' \\
 \underline{60} \\
 1225' \\
 \underline{60} \\
 73530'', \text{ Ans.}
 \end{array}$$

$$\begin{array}{r}
 (80.) \quad 4 \text{ t. } 1473 \text{ lb. } 7 \text{ oz.} \\
 2000 \\
 \underline{9473 \text{ lb.}} \\
 16 \\
 \underline{56838} \\
 94737 \\
 \underline{151575 \text{ oz.}} \text{ Ans.}
 \end{array}$$

$$\begin{array}{r}
 (81.) \\
 144) 2548 \text{ sq. in.} \\
 \underline{9) 17 \text{ sq. ft. } 100 \text{ sq. in.}} \\
 \quad 1 \text{ sq. yd. } 8 \text{ sq. ft.} \\
 \text{Ans. } 1 \text{ sq. yd. } 8 \text{ sq. ft. } 100 \text{ sq. in.}
 \end{array}$$

$$\begin{array}{r}
 (82.) \quad 4 \text{ sq. m. } 25 \text{ a. } 154 \text{ sq. rd.} \\
 640 \\
 \underline{2585 \text{ a.}} \\
 160 \\
 \underline{155100} \\
 2585 \\
 \underline{154} \\
 413754 \text{ sq. rd., Ans.}
 \end{array}$$

$$\begin{array}{r}
 (83.) \\
 8 \text{ cu. yd. } 1727 \text{ cu. in.} \\
 27 \\
 \underline{216 \text{ cu. ft.}} \\
 1728 \\
 \underline{1728} \\
 432 \\
 1512 \\
 216 \\
 \underline{1727} \\
 374975 \text{ cu. in., Ans.}
 \end{array}$$

$$\begin{array}{r}
 (84.) \quad 4 \text{ sq. yd.} \\
 9 \\
 \underline{36 \text{ sq. ft.}} \\
 144 \\
 \underline{144} \\
 144 \\
 36 \\
 \underline{5184 \text{ sq. in.,}} \text{ Ans.}
 \end{array}$$

$$\begin{array}{r}
 (85.) \\
 4 \text{ gal. } 1 \text{ pt.} \\
 8 \\
 \underline{33 \text{ pt.}} \\
 4 \\
 132 \text{ gi., Ans.}
 \end{array}$$

$$\begin{array}{r}
 (86.) \quad 2 \text{ wk. } 6 \text{ d. } 8 \text{ h. } 16 \text{ sec.} \\
 7 \\
 \underline{20 \text{ d.}} \\
 24 \\
 \underline{488 \text{ h.}} \\
 60 \\
 \underline{29280 \text{ m.}} \\
 60 \\
 1756816 \text{ sec., Ans.}
 \end{array}$$

$$\begin{array}{r}
 (87.) \quad 4 \text{ m. } 319 \text{ rd.} \\
 \underline{320} \\
 1280 \\
 \underline{319} \\
 1599 \text{ rd., Ans.}
 \end{array}$$

$$\begin{array}{r}
 (88.) \quad 320) \overline{3795} \text{ rd.} \\
 \text{Ans. } 11 \text{ m. } 275 \text{ rd.}
 \end{array}$$

$$\begin{array}{r}
 (90.) \quad 60) \overline{368294}'' \\
 \underline{60) \overline{6138}'} \quad 14'' \\
 102^\circ 18'
 \end{array}$$

$$\begin{array}{r}
 (89.) \quad 2) \overline{6598} \text{ pt.} \\
 \underline{8) \overline{3299}} \text{ qt.} \\
 \underline{4) \overline{412}} \text{ pk. } 3 \text{ qt.} \\
 103 \text{ bush.} \\
 \text{Ans. } 103 \text{ bush. } 3 \text{ qt.}
 \end{array}$$

$$\begin{array}{r}
 \text{Ans. } 102^\circ 18' 14'' \\
 (91.) \quad 4) \overline{4680} \text{ gi.} \\
 \underline{2) \overline{1170}} \text{ pt.} \\
 \underline{4) \overline{585}} \text{ qt.} \\
 \text{Ans. } 146 \text{ gal. } 1 \text{ qt.}
 \end{array}$$

$$\begin{array}{r}
 (92.) \quad 1728) \overline{195261} \text{ cu. in.} \\
 \underline{27) \overline{112}} \text{ cu. ft. } 1725 \text{ cu. in.} \\
 \text{Ans. } 4 \text{ cu. yd. } 4 \text{ cu. ft. } 1725 \text{ cu. in.}
 \end{array}$$

$$\begin{array}{r}
 (93.) \quad 160) \overline{310556} \text{ sq. rd.} \\
 \underline{640) \overline{1940}} \text{ a. } 156 \text{ sq. rd.} \\
 \text{Ans. } 3 \text{ sq. m. } 20 \text{ a. } 156 \text{ sq. rd.}
 \end{array}$$

$$\begin{array}{r}
 99. \quad \frac{1}{2} \text{ gal.} = 3\frac{3}{4} \text{ qt.}; \quad \frac{3}{4} \text{ qt.} = 1\frac{1}{2} \text{ pt.}; \quad \frac{1}{2} \text{ pt.} = 1\frac{1}{2} \text{ gi.} \\
 \text{Ans. } 3 \text{ qt. } 1 \text{ pt. } 1\frac{1}{2} \text{ gi.}
 \end{array}$$

$$\begin{array}{r}
 100. \quad \frac{2}{5} \text{ a.} = 57\frac{3}{5} \text{ sq. rd.}; \quad \frac{3}{5} \text{ sq. rd.} = 163\frac{7}{5} \text{ sq. ft.}; \quad \frac{7}{5} \text{ sq. ft.} \\
 = 50\frac{3}{5} \text{ sq. in.} \quad \text{Ans. } 57 \text{ sq. rd. } 163 \text{ sq. ft. } 50\frac{3}{5} \text{ sq. in.}
 \end{array}$$

$$101. \quad \frac{7}{8} \text{ t.} = 583\frac{1}{2} \text{ lb.}; \quad \frac{1}{2} \text{ lb.} = 5\frac{1}{2} \text{ oz.} \quad \text{Ans. } 583 \text{ lb. } 5\frac{1}{2} \text{ oz.}$$

$$\begin{array}{r}
 (102.) \quad 0.375^\circ \\
 \underline{60} \\
 22.500' \\
 \underline{60} \\
 30.0'' \\
 \text{Ans. } 22' 30''
 \end{array}
 \qquad
 \begin{array}{r}
 (103.) \quad 0.825 \text{ rd.} \\
 \underline{16\frac{1}{2}} \\
 320) \overline{7654} \text{ rd.} \\
 \underline{23 \text{ m. } 294 \text{ rd.}} \\
 13.6125 \text{ ft.} \\
 \underline{12} \\
 7.3500 \text{ in.} \\
 \text{Ans. } 23 \text{ m. } 294 \text{ rd. } 13 \text{ ft. } 7.35 \text{ in.}
 \end{array}$$

$$(104.) \quad 0.984375 \text{ bush.}$$

$$\begin{array}{r} 4 \\ \hline 3.937500 \text{ pk.} \\ 8 \\ \hline 7.5000 \text{ qt.} \\ 2 \\ \hline 1.0 \text{ pt.} \end{array}$$

$$\text{Ans. } 3 \text{ pk. } 7 \text{ qt. } 1 \text{ pt.}$$

$$(105.) \quad 0.40625 \text{ gal.}$$

$$\begin{array}{r} 4 \\ \hline 1.62500 \text{ qt.} \\ 2 \\ \hline 1.250 \text{ pt.} \\ 4 \\ \hline 1.00 \text{ gi.} \end{array}$$

$$\text{Ans. } 1 \text{ qt. } 1 \text{ pt. } 1 \text{ gi.}$$

$$106. \quad 9 \text{ in.} = \frac{3}{4} \text{ ft.}; \quad 5\frac{3}{4} \text{ ft.} = (5\frac{3}{4} \div 16\frac{1}{2}) \text{ rd.} = \frac{3}{8} \text{ rd.};$$

$$6\frac{3}{8} \text{ rd.} = (6\frac{3}{8} \div 320) \text{ m.} = \frac{1}{2}\frac{1}{16}\frac{3}{8} \text{ m., Ans.}$$

$$107. \quad 72 \text{ sq. in.} = \frac{1}{2} \text{ sq. ft.}; \quad 181\frac{1}{2} \text{ sq. ft.} = (181\frac{1}{2} \div 272\frac{1}{4}) \text{ sq. rd.} \\ = \frac{3}{8} \text{ sq. rd.}; \quad 42\frac{3}{8} \text{ sq. rd.} = (42\frac{3}{8} \div 160) \text{ a.} = \frac{1}{16} \text{ a., Ans.}$$

$$108. \quad 10 \text{ oz.} = \frac{5}{8} \text{ lb.}; \quad 875\frac{5}{8} \text{ lb.} = (875\frac{5}{8} \div 2000) \text{ t.} = \frac{1}{2}\frac{1}{2}\frac{1}{8} \text{ t., Ans.}$$

$$(109.) \quad 12) 6 \text{ in.}$$

$$5280) \overline{175.5 \text{ ft.}}$$

$$\text{Ans. } 0.0332386+ \text{ m.}$$

$$(110.) \quad 144) 9 \text{ sq. in.}$$

$$272.25) \overline{68.0625 \text{ sq. ft.}}$$

$$160) \overline{145.25 \text{ sq. rd.}}$$

$$\text{Ans. } 0.9078125 \text{ a.}$$

$$(111.) \quad 2) \overline{1 \text{ pt.}}$$

$$8) \overline{4.5 \text{ qt.}}$$

$$4) \overline{3.5625 \text{ pk.}}$$

$$\text{Ans. } 0.890625 \text{ bush.}$$

ADDITION.

Page 147.

$$113. \quad 12 \text{ wk.}$$

$$115. \quad 174 \text{ bush. } 3 \text{ qt. } 1 \text{ pt.}$$

$$116. \quad 73^{\circ} 56' 34''$$

SUBTRACTION.

Page 148 - 149.

$$119. \quad 1 \text{ wk. } 5 \text{ d. } 7 \text{ h. } 14 \text{ m. } 45 \text{ sec.}$$

$$120. \quad 13 \text{ d. } 14 \text{ h. } 16 \text{ m. } 33 \text{ sec.}$$

$$121. \quad 5 \text{ a. } 82 \text{ sq. rd. } 199 \text{ sq. ft. } 36 \text{ sq. in.}$$

$$124. \quad 6 \text{ yr. } 6 \text{ m.}$$

$$125. \quad 25 \text{ yr. } 8 \text{ m. } 9 \text{ d.}$$

$$126. \quad \text{Variable.}$$

$$127. \quad 70 \text{ yr. } 9 \text{ m. } 6 \text{ d.}$$

$$128. \quad 4 \text{ yr. } 2 \text{ m. } 3 \text{ d.}$$

| | | |
|---|------|---------|
| 130. Feb. 26, 1868, 7 P. M., to Feb. 26, 1875, 7 P. M., | d. | h. |
| 7 years, including 2 leap years, | | 2557 |
| Feb. 26, 1875, 7 P. M., to Dec. 22, 1875, 7 P. M. | | 299 |
| Dec. 22, " " " " 23, " 3 " | | 0 20 |
| | Ans. | 2856 20 |

MULTIPLICATION AND DIVISION.

Page 150.

| | |
|------------------------------------|--------------------------------|
| 133. 16 m. 226 rd. 4 yd. | 138. 2° 30' 25" |
| 135. 20° 2' 40" | 139. 8 gal. 3 qt. 1 pt. 2 gi. |
| 137. 1 wk. 2 d. 4 h. 45 m. 59 sec. | 140. 8 bush. 3 pk. 7 qt. 1 pt. |

LONGITUDE AND TIME.

Page 152-153.

(142.)

| | | | |
|---|----|-----|-------------------------------|
| 77° | 2' | 48" | W., long. of Washington. |
| 71° | 4' | 9" | W., " Boston. |
| 15) | 5° | 58' | 39", difference in longitude. |
| Difference in time, 23 m. 54 $\frac{3}{4}$ sec., Ans. | | | |

(143.)

| | | | |
|---|-----|-----|-------------------------------|
| 2° | 20' | 15" | E., longitude of Paris. |
| 74° | 0' | 3" | W., " New York. |
| 15) | 76° | 20' | 18", difference in longitude. |
| Difference in time, 5 h. 5 m. 21 $\frac{1}{2}$ sec., Ans. | | | |

(144.)

| | | |
|---|-----|-------------------------------|
| 87° | 35' | W., longitude of Chicago. |
| 75° | 10' | W., " Philadelphia. |
| 15) | 12° | 25', difference in longitude. |
| Difference in time, 49 m. 40 sec., Ans. | | |

(145.)

$$\begin{array}{rcl}
 90^\circ & 7' & \text{W., longitude of New Orleans.} \\
 30^\circ & 19' & \text{E., " St. Petersburg.} \\
 \hline
 15) 120^\circ & 26' & \text{, difference in longitude.}
 \end{array}$$

Difference in time, 8 h. 1 m. 44 sec., Ans.

146. $(90 \div 15)$ h. = 6 h., Ans.

(149.)

$$\begin{array}{rcl}
 \text{Difference in time,} & & 6 \text{ m. } 6\frac{1}{2} \text{ sec.} \\
 & & \underline{15} \\
 \text{" longitude,} & 1^\circ & 31' \quad 37\frac{1}{2}'' \\
 \text{Longitude of Boston,} & 71^\circ & 4' \quad 9'' \text{ W.} \\
 \hline
 \text{" Springfield,} & 72^\circ & 35' \quad 46\frac{1}{2}'' \text{ W., Ans.}
 \end{array}$$

(150.)

$$\begin{array}{rcl}
 \text{Difference in longitude } (37 \times 15)' & = & 9^\circ 15'. \\
 \text{Longitude of New York,} & 74^\circ & 0' \quad 3'' \text{ W.} \\
 \text{Difference in longitude,} & 9^\circ & 15' \\
 \hline
 \text{Longitude of the Bermudas,} & 64^\circ & 45' \quad 3'' \text{ W., Ans.}
 \end{array}$$

MISCELLANEOUS EXAMPLES.**Page 154-159.**

173. 43 a. 140 sq. rd. = 43.875 a.

$$\$40 \times 43.875 = \$1755, \text{ Ans.}$$

174. 3 t. 1562½ lb. = 3.78125 t.

$$\$6 \times 3.78125 = \$22.68\frac{3}{4}, \text{ Ans.}$$

175. 24 m. 140 rd. = 24.4375 m.

$$\$5775 \times 24.4375 = \$141126.56\frac{1}{4}, \text{ Ans.}$$

176. $\$1 \times (40.5 + 30.5) \times 2 = \$142, \text{ Ans.}$

$$\begin{aligned}
 177. (40.5 \times 25.75) \text{ sq. rd.} &= 1042.875 \text{ sq. rd.} \\
 &= 6 \text{ a. } 82\frac{7}{8} \text{ sq. rd., Ans.}
 \end{aligned}$$

178. $\$7 \times 82.5 \div 2000 = \$0.28\frac{5}{8}, \text{ Ans.}$

$$179. 0.785 \text{ yr.} = (0.785 \times 365\frac{1}{4}) \text{ d.} = 286.72125 \text{ d.}$$

$$0.72125 \text{ d.} = (0.72125 \times 24) \text{ h.} = 17.31 \text{ h.}$$

$$0.31 \text{ h.} = (0.31 \times 60) \text{ m.} = 18.6 \text{ m.}$$

$$0.6 \text{ m.} = (0.6 \times 60) \text{ sec.} = 36 \text{ sec.}$$

$$\text{Ans. } 286 \text{ d. } 17 \text{ h. } 18 \text{ m. } 36 \text{ sec.}$$

$$180. \quad \$2.25 \times 15 = \$33.75$$

$$3.50 \times 12.5 = 43.75$$

$$3.25 \times 8.8 = 28.60$$

$$\text{Ans. } \$106.10$$

$$181. \$3.75 \times (4.1 + 4 + 0.9) = \$3.75 \times 9 = \$33.75, \text{ Ans.}$$

$$182. (18.25 \times 2.8) \text{ sq. ft.} = 51.1 \text{ sq. ft., Ans.}$$

$$183. 1 \text{ t. } 287\frac{1}{2} \text{ lb.} = 1.14375 \text{ t.}$$

$$\$8 \times 1.14375 = \$9.15, \text{ Ans.}$$

$$184. 35 \text{ gal. } 3 \text{ qt. } 1 \text{ pt.} = 35.875 \text{ gal.}$$

$$\$7.175 \div 35.875 = \$0.20, \text{ Ans.}$$

$$185. \$1.25 \times 16.5 \times 15 \div 9 = \$34.375, \text{ Ans.}$$

$$186. (29 \text{ gal. } 3 \text{ qt. } 2 \text{ gi.}) \div 6 = 4 \text{ gal. } 3 \text{ qt. } 1 \text{ pt. } 3 \text{ gi., Ans.}$$

$$187. (10 \text{ t. } 1825 \text{ lb.}) \div 5 = 2 \text{ t. } 365 \text{ lb., Ans.}$$

$$188. (2 \text{ t. } 760 \text{ lb.}) \div 8 = 595 \text{ lb., Ans.}$$

$$189. (143 \text{ bush. } 2 \text{ pk. } 2 \text{ qt. } 1 \text{ pt.}) \div 9 =$$

$$15 \text{ bush. } 3 \text{ pk. } 6 \text{ qt. } 1 \text{ pt., Ans.}$$

$$190. (212 \text{ m. } 66 \text{ rd.}) \div 7 = 30 \text{ m. } 100\frac{2}{7} \text{ rd., Ans.}$$

$$191. 4 \text{ yr. } 9 \text{ m. } 19 \text{ d., Ans.}$$

$$192. \begin{array}{rcl} \text{Dec. 7, 1875, 4 P. M., to June 7, 1876, 4 P. M.} & \text{d. h. m.} & 183 \\ \text{June 7, 1876, " " " 20 " " } & & 13 \end{array}$$

$$\begin{array}{rcl} \text{" 20 " " " 21 " 9 h. 30 m. A.M.} & & 0 \ 17 \ 30 \end{array}$$

$$\text{Ans. } 196 \ 17 \ 30$$

(193.)

$$\begin{array}{rcl}
 157^\circ & 37' & \text{W., longitude of Oahu.} \\
 122^\circ & 26' & 15'' \text{ W., " San Francisco.} \\
 15) \overline{35^\circ & 10' & 45''}, \text{ difference in longitude.} \\
 & 2 \text{ h. } 20 \text{ m. } 43 \text{ sec., absolute difference in time, Ans.}
 \end{array}$$

Time at Oahu 2 h. 20 m. 43 sec. earlier than at San Francisco.

(194.)

$$\begin{array}{rcl}
 71^\circ & 4' & 9'' \text{ W., longitude of Boston.} \\
 12^\circ & 27' & 14'' \text{ E., " Rome.} \\
 15) \overline{83^\circ & 31' & 23''}, \text{ difference in longitude.} \\
 & 5 \text{ h. } 34 \text{ m. } 5\frac{8}{15} \text{ sec., " time.}
 \end{array}$$

Time in Rome 5 h. 34 m. $5\frac{8}{15}$ sec. later than in Boston, Ans.

$$\begin{array}{rcl}
 122^\circ & 26' & 15'' \text{ W., longitude of San Francisco.} \\
 71^\circ & 4' & 9'' \text{ W., " Boston.} \\
 15) \overline{51^\circ & 22' & 6''}, \text{ difference in longitude.} \\
 & 3 \text{ h. } 25 \text{ m. } 28\frac{2}{3} \text{ sec., " time.}
 \end{array}$$

Time in San Francisco 3 h. 25 m. $28\frac{2}{3}$ sec. earlier than in Boston, Ans. (By the clock, Standard Time, it is exactly 3 hours earlier.)

$$\begin{array}{rcl}
 157^\circ & 37' & \text{W., longitude of Oahu.} \\
 71^\circ & 4' & 9'' \text{ W., " Boston.} \\
 15) \overline{86^\circ & 32' & 51''}, \text{ difference in longitude.} \\
 & 5 \text{ h. } 46 \text{ m. } 11\frac{2}{3} \text{ sec., " time.}
 \end{array}$$

Time in Oahu 5 h. 46 m. $11\frac{2}{3}$ sec. earlier than in Boston, Ans.

$$\begin{array}{rcl}
 88^\circ & 19' & 2'' \text{ E., longitude of Calcutta.} \\
 71^\circ & 4' & 9'' \text{ W., " Boston.} \\
 15) \overline{159^\circ & 23' & 11''}, \text{ difference in longitude.} \\
 & 10 \text{ h. } 37 \text{ m. } 32\frac{1}{3} \text{ sec. " time.}
 \end{array}$$

Time in Calcutta 10 h. 37 m. $32\frac{1}{3}$ sec. later than in Boston, Ans.

(195.)

$$\left. \begin{array}{l} \text{From Maine, B,} \\ \{(10\frac{1}{2} + 3\frac{1}{2}) \times 15\}' = 3^\circ 30', \end{array} \right\} \text{Ans.}$$

(196.)

$$\begin{array}{rcl} 74^\circ & 0' & 3'' \text{ W., longitude of New York.} \\ 0^\circ & 5' & 38'' \text{ W., " London.} \\ 15) \hline 73^\circ & 54' & 25'', \text{ difference in longitude.} \\ & 4 \text{ h.} & 55 \text{ m.} & 37\frac{2}{3} \text{ sec., " time, Ans.} \end{array}$$

Time in London 4 h. 55 m. $37\frac{2}{3}$ sec. later than in New York.

$$197. \quad \overset{5}{40} \times \overset{13}{4} \times \frac{1}{\underset{4}{\cancel{128}}} = 8\frac{1}{8}, \text{ Ans.}$$

$$\$ (4\frac{1}{8} \times 1\frac{3}{4}) = \$52.81+, \text{ Ans.}$$

$$198. \quad 4675 \div 425 = 11, \text{ Ans.}$$

$$199. \quad \text{A owns } \frac{2}{3}; \text{ B } \frac{2}{3}; \text{ A's} - \text{B's} = \frac{1}{3}.$$

$$(506 \div \frac{2}{3}) \text{ sq. rds} = 759 \text{ sq. rds. is } \frac{1}{3} \text{ of the lot.}$$

$$\text{Ans.} \quad \left\{ \begin{array}{l} \text{A's } \frac{2}{3} = 2277 \text{ sq. rds.} = 14\frac{37}{100} \\ \text{B's } \frac{2}{3} = 1518 \text{ sq. rds.} = 9\frac{3}{8} \end{array} \right.$$

$$200. \quad \$ \left(35 \times \frac{11}{\cancel{22}} \times \frac{2}{\cancel{6}} \times \frac{1}{\cancel{27}} \times \frac{1}{\cancel{4}} \right) = \$42.78-, \text{ Ans.}$$

$$201. \quad 125 \times 40 \times 60 \div 2150.4 = 139\frac{17}{11}, \text{ Ans}$$

$$202. \quad 35\frac{3}{4} \times 47\frac{1}{4} \div 160$$

$$= \frac{235}{33} \times \frac{521}{11} \times \frac{1}{\underset{32}{\cancel{160}}} = 10\frac{6274}{11818}, \text{ Ans.}$$

$$203. \quad \$ \left(55 \times \frac{17}{2} \times \frac{1}{\underset{3}{9}} \times \frac{3}{8} \right) = \$19.48-, \text{ Ans.}$$

$$204. \quad \$ \left(\frac{99}{\cancel{198}} \times 3 \times \frac{11}{2} \times \frac{1}{\cancel{7}} \times \frac{7}{\cancel{2}} \right) = \$16.335.$$

$$205. \begin{array}{r} \text{m.} \quad \text{rd.} \quad \text{ft.} \\ 10) \begin{array}{r} 45 \\ 217 \\ 13\frac{1}{2} \end{array} \\ \hline \text{Ans. } 4 \quad 181 \quad 12.9 \end{array}$$

$$206. \frac{\overset{3}{285} \times 27}{\underset{\underset{5}{5}}{53} \times 45} \text{ feet} = 3 \text{ feet, Ans.}$$

$$207. \$ \left(\frac{\overset{120}{1320} \times 2 \times 2 \times 160}{11 \times 160} \right) = \$480, \text{ Ans.}$$

$$208. \$ \left(\frac{\overset{11.2}{2150.4} \times \overset{100}{600} \times 3}{\underset{\underset{9}{9}}{1728} \times \underset{\underset{3}{27}}{27} \times 2} \right) = \$41.48+, \text{ Ans.}$$

209. He goes $(3 \times 28 \div 2)$ inches, or 42 inches a second.

$$\frac{\overset{44}{88} 5280 \times 12 \times 5}{\underset{21}{42} \times 60 \times 60} \text{ hours} = 2 \text{ h. } 5\frac{1}{2} \text{ m., Ans.}$$

$$210. \$ (\$33\frac{1}{3} \times 1\frac{1}{2}) = \$34.96+, \text{ Ans.}$$

211. It will take 4 pickets a foot.

$$(312\frac{1}{2} + 162\frac{1}{2}) \times 4 = 1900, \text{ Ans.}$$

212. Both $312\frac{1}{2}$ and $162\frac{1}{2}$ are divisible by $12\frac{1}{2}$.

$$\left(\frac{312\frac{1}{2} + 162\frac{1}{2}}{12\frac{1}{2}} + 1 \right) \text{ posts} = 39 \text{ posts, 1st Ans.}$$

$$\left(\frac{312\frac{1}{2} + 162\frac{1}{2}}{12\frac{1}{2}} \times 2 \right) \text{ rails} = 76 \text{ rails, 2d Ans.}$$

$$213. \frac{1687 \times 787}{43560} = 30\frac{23333}{43560}, \text{ Ans.}$$

$$214. \$ (17000 \times 20) = \$340000, \text{ Ans.}$$

$$215. \frac{6 \times 5 \times 5 \times 1728}{2 \times \frac{231}{77}} = 561\frac{3}{7}, \text{ Ans.}$$

$$216. \$(\frac{1}{3} \times 550) = \$1925, \text{ cost of coal.}$$

$$\$ \left(\frac{550 \times \frac{14}{2000} \times \frac{3}{15}}{\frac{4}{4}} \right) = \$2310, \text{ rec'd for sale, Ans.}$$

$$\$2310 - \$1925 = \$385, \text{ Ans.}$$

$$217. 15 \div \left(\frac{3}{2} + \frac{1}{8} \right) = 15 \times \frac{8}{13} = \frac{120}{13} = 9\frac{3}{13}$$

$$\frac{29}{2} \div \frac{41}{12} = \frac{29}{2} \times \frac{12}{41} = \frac{174}{41} = 4\frac{10}{41} = 4\frac{1}{4}. \text{ Ans. } 36.$$

$$218. (3\frac{1}{2} \times 4) \text{ ft.} + \frac{1}{8} \text{ in.} = 13\frac{2}{3} \text{ ft.} + \frac{1}{2} \text{ in.} = 13 \text{ ft. } 8\frac{1}{2} \text{ in.}$$

$$14 \text{ ft. } 6 \text{ in.} - 13 \text{ ft. } 8\frac{1}{2} \text{ in.} = 9\frac{1}{2} \text{ in., 1st Ans.}$$

The $\frac{1}{8}$ in. are the 4 cross saw cuts. To get 10 pickets in the width, that is, 4 more pickets in all, the board must be $(\frac{3}{4} \times 10 + \frac{1}{8})$ in. = $16\frac{1}{8}$ in. wide, or $1\frac{1}{8}$ in. wider, 2d Ans.

$$219. (45\frac{2}{3} \times 24 \times 4 \times 2) = 8768, \text{ 1st Ans.}$$

$$\$ (87.68 \times 4) = \$350.72, \text{ 2d Ans.}$$

220. The two blocks will each be 300 ft. by 175 ft. Each block will have 8 house-lots, of which 4 are corner lots. Each lot will be $87\frac{1}{2}$ ft. by 75 ft. One half will be in corner lots at $\$0.37\frac{1}{2}$ a square foot, and the other half at $\$0.33$ a square foot.

$$\$ (300 \times 175) \frac{3}{8} + \$ (300 \times 175) \frac{1}{8}$$

$$= \$19687.50 + \$17500 = \$37187.50, \text{ Ans.}$$

$$221. \frac{320 \times 13 \times 144}{2 \times 8 \times 4} = 9360, \text{ Ans.}$$

No allowance is made for any space between the bricks.

$$222. \$ (9.460 \times 6) = \$56.76, \text{ Ans.}$$

$$223. \$ \left(\frac{40}{320} \times \frac{13}{2} \times \frac{1}{9} \times \frac{3}{4} \right) = \$173.33\frac{1}{3}, \text{ Ans.}$$

224. It takes $144 \div 16$ bricks = 9 bricks to pave a square foot if laid with the edge 8 by 2 inches as the face, and $4\frac{1}{2}$ if laid on the 8 by 4 face.

$$24 \times \frac{13}{2} \times 9 - 24 \times \frac{13}{2} \times \frac{9}{2} = \frac{6}{24} \times \frac{13}{2} \times \frac{9}{2} = 702, \text{ Ans.}$$

225. Additional for laying the driveways:

$$\$ \left(\frac{3}{24} \times \frac{13}{2} \times \frac{1}{9} \times \frac{3}{4} \right) = \$13.$$

Additional for 702 bricks, $\$ (0.702 \times 6) = \4.212 ;

$$\$56.76 + \$173.33\frac{1}{3} + \$4.212 + \$13 = \$247.31-, \text{ Ans.}$$

226. $[(22 + 18) \times 2 \times 8 - (35 + 63)]$ sq. ft. = 542 sq. ft. in the side walls of the room. Each roll will paper $(7 \times 3 \times \frac{2}{3})$ sq. ft. = $9\frac{2}{3}$ sq. ft.

$$\$ \left(542 \times \frac{2}{63} \times \frac{1}{2} \right) = \$8.60+, \text{ Ans.}$$

$$227. \$ [\{(22 + 18) \times 2 - 10\frac{1}{2}\} \times 0.05] = \$3.47\frac{1}{2}, \text{ Ans.}$$

$$228. \frac{2}{18} \times \frac{4}{12} = 8, \text{ Ans.}$$

$$229. \$ (23 \times 8 \times 1.60 \div 3) = \$98.13\frac{1}{3}, \text{ Ans.}$$

$$230. \frac{22 \times \frac{4}{12}}{\frac{27}{9}} = 9\frac{2}{3}. \quad 10 \text{ strips.}$$

$$\$ (19 \times 10 \times 1.60 \div 3) = \$101.33\frac{1}{3}$$

$$\$101.33\frac{1}{3} - \$98.13\frac{1}{3} = \$3.20 \text{ more, Ans.}$$

$$231. \left\{ \frac{(21\frac{1}{2} + 18) \times 2 \times 16 + 21\frac{1}{2} \times 18}{9} - 10 \right\} \text{sq. yds.}$$

$$= 120\frac{7}{8} \text{ sq. yds. } \$ \left(\frac{1087}{\frac{9}{3}} \times \frac{3}{10} \right) = \$36.23\frac{1}{3}, \text{ Ans.}$$

PERCENTAGE.

Page 163-228.

$$27. \$917.84 \times 0.43 = \$394.6712, \text{ Ans.}$$

$$28. \$756.13 \times 0.18 = \$136.1034, \text{ Ans.}$$

$$29. \$973.64 \times 0.17 = \$165.5188, \text{ Ans.}$$

$$30. 18775 \times 1.08 = 20277, \text{ Ans.}$$

$$31. 1376875 \times 0.88 = 1211650, \text{ Ans.}$$

$$32. \$8456 \times 0.37 = \$3128.72, \text{ Ans.}$$

$$33. \$56895 \times 0.91 = \$51774.45, \text{ Ans.}$$

$$34. \$3564 \times 0.30 = 1069.20, \text{ Ans.}$$

$$35. \$755.44 \times 0.95 = \$717.668, \text{ Ans.}$$

$$36. \left. \begin{array}{l} \$876.65 \times 0.35 = \$306.8275, \\ \$876.65 - \$306.8275 = \$569.8225, \end{array} \right\} \text{ Ans.}$$

$$38. \$1.14 \times 638 = \$727.32, \text{ Ans.}$$

$$39. \$1.125 \times 2500 = \$2812.50, \text{ Ans.}$$

$$51. \$18 \div \$168 = 0.10\frac{5}{8}, \text{ or } 10\frac{5}{8} \%, \text{ Ans.}$$

$$52. \$19 \div \$300 = 0.06\frac{1}{3}, \text{ or } 6\frac{1}{3} \%, \text{ Ans.}$$

$$53. \$43.75 \div \$350 = 0.125, \text{ or } 12\frac{1}{2} \%, \text{ Ans.}$$

$$54. \$350 \div \$43.75 = 800, \text{ or } 800 \%, \text{ Ans.}$$

$$55. 44 \div 550 = 0.08, \text{ or } 8 \%, \text{ Ans.}$$

$$56. 485 \div 500 = 0.97, \text{ or } 97 \%, \text{ Ans.}$$

$$65. \$9 \div 0.04 = \$225, \text{ Ans.}$$

$$66. \$37.50 \div 0.03 = \$1250, \text{ Ans.}$$

67. $\$12 \div 0.07 = \$171.428+$, Ans.
 68. $\$8 \div 0.16 = \50 , Ans.
 69. $37.5 \div 0.06 = 625$, Ans.
 70. $33 \div 0.01375 = 2400$, Ans.
 71. $769 \div 0.20 = 3845$, Ans.
 72. $420 \div 0.84 = 500$, Ans.
 73. $(\$475 \div 0.83\frac{1}{3}) \div 500 = \1.14 , Ans.
 74. $486 \div 1.08 = 450$, Ans.
 76. $\$1 \div 1.75 = \$0.57\frac{1}{7}$,
 $\$1 \div 2.50 = \0.40 , } Ans.

PROFIT AND LOSS.

Page 169 - 171.

94. $\$87.50 \times 1.12 = \98 , Ans.
 95. $(\$8.50 - \$7.75) \div \$7.75 = 0.09\frac{3}{4}$, or $9\frac{3}{4}\%$, Ans.
 96. $(\$2576 - \$2485.84) \div \$2576 = 0.03\frac{1}{2}$, or $3\frac{1}{2}\%$, Ans.
 97. $\$205 \div 0.82 = \250 , Ans.
 98. $\$3 \times 164 = \492.00 received for broadcloth.
 $\$2.25 \times 287 = \645.75 " " cassimere.
 $\$1137.75$ " " both.
 $\$1107.00$
 $\$30.75$ gain, 1st Ans.
 $\$30.75 \div \$1107 = 0.02\frac{7}{8}$, or $2\frac{7}{8}\%$, 2d Ans.
 99. $\$0.34 \times 50 = \17 , received.
 $\$20 - \$17 = \$3$, loss,
 $\$3 \div \$20 = 0.15$, or 15% , } Ans.
 100. $\$2155 - \$2095 = \$60$ gain.
 $\$60 \div \$2000 = 0.03$, or 3% , Ans.

101. $\$4848 \times 1.05 = \5090.40 , Ans.
102. $(\$3500 + \$750) \times 0.85 = \$3612.50$, Ans.
103. $(\$26.88 \div 1.12) \div 6 = \4 , Ans.
104. $\$7 \div 1.12 = \6.25 , cost.
 $(\$7.25 - \$6.25) \div \$6.25 = 0.16$, or 16 %, Ans.
105. $\$0.06 \div 0.96 = \$0.06\frac{1}{4}$, cost.
 $(\$0.06\frac{1}{2} - \$0.06\frac{1}{4}) \div \$0.06\frac{1}{4} = 0.04$, or 4 % gain, Ans.
106. $\$21 \div 1.05 = \20 , cost.
 $(\$20 - \$18) \div \$20 = 0.10$, or 10 % loss, Ans.
107. $\$23.50 \div 0.94 = \25 , Ans.
108. $\$37.50 \div 75 = \0.50 , cost a pound ; average selling price \$0.52, a gain of 2 cents on 50 cents, or 4 cents on \$1. Gain, 4 %, Ans.
109. $\$7.50 \div 0.93\frac{3}{4} = \8 , cost. $\$8 \times \frac{9}{8} = \9 , Ans.
110. $\$2 \div 0.90 = \$2.22\frac{2}{3}$, cost.
 $(\$2.22\frac{2}{3} - \$2.12\frac{1}{2}) \div \$2.22\frac{2}{3} = 0.04\frac{2}{3}$, or $4\frac{2}{3}$ %, loss, Ans.
111. $\$7$, cost ; $\$7$, received.
 $(\$7 - \$7) \div \$7 = \frac{2}{7} = 0.96$, or 96 %, Ans.
112. $\$0.50 \times 75 \div 60 = \0.625 , what he must receive a gallon ; that is, he must gain \$0.125 on \$0.50, or \$0.25 on \$1. 25 %, Ans. Or, he must make up 15 gallons on 60 gallons, that is, $\frac{1}{4}$ of it, or 25 %, Ans.
113. $\$175 \div 1.05 = \$166\frac{2}{3}$, cost.
 $(\$200 - \$166\frac{2}{3}) \div \$166\frac{2}{3} = 0.20$, or 20 %, Ans.
114. $\$8.50 \div 1.10 = \$7.72\frac{8}{11}$, cost.
 $(\$9.50 - \$7.72\frac{8}{11}) \div \$7.72\frac{8}{11} = 0.22\frac{1}{4}$, or $22\frac{1}{4}$ %, Ans.
115. $\$5000 \div \frac{4}{5} = \4000 , cost.
 $(\$4000 - \$3500) \div \$4000 = 0.125$, or $12\frac{1}{2}$ % loss, Ans.
116. $1.15 \times 0.92 = 1.058$; $5\frac{2}{5}$ %, Ans.

$$117. \frac{1}{8} \text{ a.} = 8712 \text{ sq. ft.} \quad \$2178 \times \frac{3}{8} \div 8712 = \$0.30, \text{ Ans.}$$

$$118. \frac{363 \times 75}{272\frac{1}{2} \times 160} \text{ a.} = \frac{5}{8} \text{ a.} \quad \text{I must gain } \frac{3}{8} \text{ on } \frac{5}{8}, \text{ or 3 on 5,}$$

that is, 60 %, Ans.

INSURANCE.

Page 172.

$$120. \$75000 \times 0.03 = \$2250, \text{ Ans}$$

$$121. \$2400 \times \frac{3}{4} \times 0.01\frac{1}{2} = \$28, \text{ Ans.}$$

$$122. \$4000 \times 0.01\frac{3}{4} + \$1 = \$65, \text{ Ans.}$$

$$123. \$8000 \times \frac{3}{4} = \$6000, \text{ amount of policy.}$$

$$\$6000 \times 0.00\frac{2}{3} = \$40, \text{ premium.}$$

$$\$8000 - \$6000 + \$40 = \$2040, \text{ my loss,} \quad \left. \begin{array}{l} \\ \$6000 - \$40 = \$5960, \text{ insurers' loss,} \end{array} \right\} \text{ Ans.}$$

$$124. \$75000 \times 0.05\frac{1}{2} = \$4125, \text{ Ans.}$$

$$125. \$60000 \times \frac{1}{2} \times 0.03 = \$900, \text{ Ans.}$$

$$126. \$19.85 \times 6 = \$119.10, \text{ Ans.}$$

$$127. \$22.70 \times 8.5 \times 30 = \$5788.50, \text{ sum of annual premiums.}$$

$$\$8500 - \$5788.50 = \$2711.50, \text{ Ans.}$$

$$128. \$26.40 \times 5 \times 55 = \$7260, \text{ sum of the annual premiums.}$$

$$\$7260 - \$5000 = \$2260, \text{ Ans.}$$

COMMISSION AND BROKERAGE.

Page 173-176.

$$136. \$4786 \times 0.04 = \$191.44, \text{ Ans.}$$

$$137. \$0.25 \times 30 \times 50 \times 6 \times 0.006 = \$13.50, \text{ Ans.}$$

$$138. \$1.50 \times 400 + \$0.75 \times 400 + \$1 \times 500 = \$1400,$$

the amount received by the agent.

$$\left. \begin{array}{l} \$1400 \times 0.03 = \$42, \text{ commission,} \\ \$1400 - \$42 = \$1358, \text{ remit,} \end{array} \right\} \text{ Ans.}$$

$$139. \$5100 \div 1.02 = \$5000, \text{ invest, } \left. \begin{array}{l} \\ \$100, \text{ commission,} \end{array} \right\} \text{ Ans.}$$

$$140. \$10000 \div 1.005 = \$9950.248+, \text{ invest, } \left. \begin{array}{l} \\ \$49.751+, \text{ commission,} \end{array} \right\} \text{ Ans.}$$

$$141. \$987 - \$98.70 = \$888.30, \text{ Ans.}$$

$$142. \text{ 1st discount, } \$59.44\frac{1}{2}; \text{ balance of bill, } \$416.13\frac{1}{2}; \\ \text{ 2d discount, } \$20.81-; \text{ net cost, } \$395.33-, \text{ Ans.}$$

$$143. \text{ 1st discount, } \$112.95; \text{ balance, } \$640.05; \\ \text{ 2d discount, } \$64.005; \text{ net amount, } \$576.045, \text{ Ans.}$$

$$144. \text{ 1st discount, } 20\% \text{ on } \$1 = \$0.20; \text{ 2d discount, } 15\% \text{ on } \\ \$0.80 = \$0.12; \text{ 3d discount, } 5\% \text{ on } \$0.68 = \$0.034 \\ \text{ Ans. } 35.4\%$$

$$145. \text{ 1st discount, } \$110.25; \text{ balance, } \$624.75; \\ \text{ 2d discount, } \$62.475; \text{ balance, } \$562.275; \\ \text{ 3d discount, } \$28.11375; \text{ net amount, } \$534.16+, \text{ Ans.}$$

$$146. \$67.50 \times 17 = \$1147.50, \text{ Ans.}$$

$$147. \$104.50 \times 12 = \$1254, \text{ Ans.}$$

$$148. \$11.25 \times 35 = \$393.75, \text{ Ans.}$$

$$149. \$101 \times 18 = \$1818, \text{ Ans.}$$

$$150. \$64 \times 29 = \$1856, \text{ Ans.}$$

$$151. \$89 \times 17 = \$1513, \text{ Ans.}$$

$$152. \$114\frac{1}{2} \times 25 = \$2856.25, \text{ Ans.}$$

$$153. \text{ On each share there is a credit of } \$111 - \$101\frac{1}{4} = \$9\frac{3}{4}. \\ \$9.75 \times 17 = \$165.75, \text{ Ans.}$$

$$154. \begin{array}{l} \$118 \times 19 = \$2242, \\ \$113\frac{3}{4} \times 27 = \$3071.25, \end{array} \left. \begin{array}{l} \\ \end{array} \right\} \begin{array}{l} \text{Received less the} \\ \text{commission.} \end{array}$$

$$\underline{\$5313.25}$$

$$\$5313.25 \div \$101.25 = 52, \text{ and } \$48.25, \text{ Ans.}$$

$$155. \$15000 \times 0.05 = \$750, \text{ Ans.}$$

$$156. \$4.50 \times 37 = \$166.50, \text{ Ans.}$$

$$157. \$3 \times 57 = \$171, \text{ Ans.}$$

$$158. \$2941 \div \$173 = 17, \text{ Ans.}$$

$$159. \$3757 \div \$72.25 = 52, \text{ Ans.}$$

$$160. \$118\frac{1}{4} - \$111\frac{1}{4} = \$7 \text{ balance on each share.}$$

$$\$7 \times 13 = \$91, \text{ Ans.}$$

$$161. \text{ On an exchange of a share of first for second there is a brokerage of } \$0.50. \quad \$6.50 \times 13 = \$84.50, \text{ Ans.}$$

TAXES.

Page 178-179.

$$163. \$1.75 \times 416 = \$728, \text{ sum assessed on the polls.}$$

$$\$20228 - \$728 = \$19500, \text{ sum assessed on property.}$$

$$\$19500 \div 975000 = \$0.02, \text{ tax on } \$1, \text{ or the rate.}$$

$$\$2578 \times 0.02 = \$51.56, \text{ tax on Mr. A's property,}$$

$$\$51.56 + \$1.75 = \$53.31, \text{ Mr. A's entire tax, Ans.}$$

$$166. \begin{array}{rcl} \text{Tax on } \$800 & . & . & \$12 \\ \text{"} & 9 & . & . & 0.135 \\ \text{"} & \$809 & . & . & \$12.135, \text{ Ans.} \end{array}$$

$$167. \begin{array}{rcl} \text{Tax on } \$1000 & . & . & \$15 \\ \text{"} & 200 & . & . & 3 \\ \text{"} & 40 & . & . & 0.60 \\ \text{"} & 5 & . & . & 0.075 \\ \text{"} & \$1245 & . & . & \$18.675, \text{ Ans.} \end{array}$$

$$168. \begin{array}{rcl} \text{Tax on } \$2000 & . & . & \$30 \\ \text{"} & 500 & . & . & 7.50 \\ \text{"} & \$2500 & . & . & \$37.50, \text{ Ans.} \end{array}$$

$$169. \begin{array}{rcl} \text{Tax on } \$8000 & . & . & \$120 \\ \text{"} & 700 & . & . & 10.50 \\ \text{"} & 50 & . & . & 0.75 \\ \text{"} & 5 & . & . & 0.075 \\ \text{"} & \$8755 & . & . & \$131.325, \text{ Ans.} \end{array}$$

| | | | |
|------|-----------------|-------|-------------------------|
| 170. | Tax on \$9000 | . . . | \$135. |
| | " 700 | . . . | 10.50 |
| | " 50 | . . . | 0.75 |
| | " 3 | . . . | 0.045 |
| | " <u>\$9753</u> | . . . | <u>\$146.295</u> , Ans. |

| | | | |
|------|------------------|-------|------------------------|
| 171. | Tax on \$10000 | . . . | \$150. |
| | " 100 | . . . | 1.50 |
| | " 8 | . . . | 0.12 |
| | " <u>\$10108</u> | . . . | <u>\$151.62</u> , Ans. |

| | | | |
|------|------------------|-------|-------------------------|
| 172. | Tax on \$10000 | . . . | \$150. |
| | " 5000 | . . . | 75. |
| | " 800 | . . . | 12. |
| | " 70 | . . . | 1.05 |
| | " 5 | . . . | 0.075 |
| | " <u>\$15875</u> | . . . | <u>\$238.125</u> , Ans. |

| | | | |
|------|------------------|-------|------------------------|
| 173. | Tax on \$50000 | . . . | \$750. |
| | " 5000 | . . . | 75. |
| | " 600 | . . . | 9. |
| | " 80 | . . . | 1.20 |
| | " 4 | . . . | 0.06 |
| | " <u>\$55684</u> | . . . | <u>\$835.26</u> , Ans. |

| | | | |
|------|---|---|--------|
| 174. | The increase for the 10 years is 17359. | | |
| | $\frac{17359}{52888} = 0.328188$, or almost 33 % increase. | | |
| | In 1900, | $70028 \times \frac{100}{328188} = 93108$ | } Ans. |
| | In 1910, | $93108 \times \frac{100}{328188} = 123795$ | |
| | In 1920, | $123795 \times \frac{100}{328188} = 164596$ | |

$$\begin{array}{rcl}
 175. \text{ 1st discount } 25\% \text{ on } \$1.00 & = & \$0.25 \\
 2d \quad \quad \quad 10\% \text{ on } \$0.75 & = & \$0.075 \\
 3d \quad \quad \quad 5\% \text{ on } \$0.675 & = & \$0.03375 \\
 \text{Total} \quad . \quad . \quad . & = & \underline{\$0.35875}
 \end{array}$$

Ans. $35\frac{1}{8}\%$

176. $10 + 8 + 7 + 6 + 4 = 35$. Average absent, 7 a day.
Present, 358 a day.

$$358 \div 365 = 0.98\frac{2}{3} \quad \text{Ans. } 98\frac{2}{3}$$

$$177. \$ (5685 \div 1.15) = \$4943.48-, \text{ Ans.}$$

178. I received \$40 on \$800.

$$40 \div 800 = 0.05 \quad \text{Ans. } 5$$

$$179. 5 \div 118 = 0.04\frac{1}{23}$$

$$4 \div 83 = 0.04\frac{8}{83} \quad \text{Ans. The latter.}$$

INTEREST.

Page 182-203.

$$13. \$7845 \times 0.08 \times 2\frac{2}{3} = \$1673.60, \text{ Ans.}$$

$$14. \$1617.43 \times 0.07 \times 4\frac{1}{8} = \$471.75+, \text{ Ans.}$$

$$15. \$847.53 \times 0.06 \times 5\frac{1}{4} = \$266.97+, \text{ Ans.}$$

$$16. \$63.54 \times 0.06 \times 3\frac{1}{8} + \$63.54 = \$75.61+, \text{ Ans.}$$

$$23. \text{ Interest of } \$412 \text{ for 4 months} \quad . \quad . \quad \$8.24$$

$$\quad \quad \quad " \quad \quad \quad " \quad \quad \quad \frac{1}{5} \quad \quad \quad . \quad . \quad . \quad 2.06$$

$$\quad \quad \quad " \quad \quad \quad \frac{1}{5} \quad \quad \quad . \quad . \quad . \quad \underline{\$10.30}, \text{ Ans.}$$

24. Interest of \$ 42 for 2 months . . . \$ 0.42
 " " " 18 days . . . 0.126
 " " " 4 " . . . 0.028
 " " " $\frac{2 \text{ m. } 22 \text{ d.}}$. . . $\$ 0.574$, Ans.
25. Interest of \$ 54 for 18 days . . . \$ 0.162
 " " " 4 " . . . 0.036
 " " " $\frac{22 \text{ "}}$. . . $\$ 0.198$, Ans.
26. Interest of \$ 2148 for 2 months . . . \$ 21.48
 " " " 1 " . . . 10.74
 " " " $\frac{10 \text{ days } (\frac{1}{4} \text{ of } 2 \text{ m.})}{3 \text{ m. } 10 \text{ d.}}$. . . 3.58
 " " " $\frac{3 \text{ m. } 10 \text{ d.}}$. . . $\$ 35.80$, Ans.
27. Interest of \$ 75 for 10 months . . . \$ 3.75
 " " " 6 days . . . 0.075
 " " " $\frac{10 \text{ m. } 6 \text{ d.}}$. . . $\$ 3.825$, Ans.
28. Interest of \$ 173 for 1 month . . . \$ 0.865
 " " " 6 days . . . 0.173
 " " " 2 " . . . 0.0576+
 " " " $\frac{1 \text{ m. } 8 \text{ d.}}$. . . $\$ 1.096$ —, Ans.
29. Interest of \$ 16.50 for 4 months . . . \$ 0.33
 " " " 1 " . . . 0.0825
 " " " 6 days . . . 0.0165
 " " " 3 " . . . 0.00825
 " " " $\frac{5 \text{ m. } 9 \text{ d.}}$. . . $\$ 0.437$ +, Ans.
30. Interest of \$ 300 for 3 months . . . \$ 4.50
 " " " 24 days . . . 1.20
 " " " $\frac{3 \text{ m. } 24 \text{ d.}}$. . . $\$ 5.70$, Ans.
31. Interest of \$ 700 for 4 months . . . \$ 14
 " " " 12 days . . . 1.40
 " " " $\frac{4 \text{ m. } 12 \text{ d.}}$. . . $\$ 15.40$, Ans.
32. Interest of \$ 400 for 5 months . . . \$ 10
 " " " 15 days . . . 1
 " " " $\frac{5 \text{ m. } 15 \text{ d.}}$. . . $\$ 11$, Ans.

| | | |
|-----|---|-------------------|
| 33. | Interest of \$ 350 for 2 months . . . | \$ 3.50 |
| | “ “ “ 24 days . . . | 1.40 |
| | “ “ “ <u>2 m. 24 d.</u> . . . | \$ 4.90, Ans. |
| 35. | Principal | \$ 48.50 |
| | Interest for 2 months | 0.485 |
| | “ 18 days | 0.1455 |
| | “ 3 “ | 0.02425 |
| | Amount “ <u>2 m. 21 d.</u> | \$ 49.15475, Ans. |
| 36. | Interest of \$ 248 for 3 months . . . | \$ 3.72 |
| | “ “ “ 18 days . . . | 0.744 |
| | “ “ “ <u>3 m. 18 d.</u> . . . | \$ 4.464, Ans. |
| 37. | Interest of \$ 965.188 for 3 months . . | \$ 14.47782 |
| | “ “ “ 6 days . . | 0.965188 |
| | “ “ “ 5 “ . . | 0.804323+, |
| | “ “ “ <u>3 m. 11 d.</u> . . | \$ 16.247+, Ans. |
| 38. | Interest of \$ 225.87 for 3 months . . | \$ 3.38805 |
| | “ “ “ 15 days . . | 0.564675 |
| | “ “ “ <u>3 m. 15 d.</u> . . | \$ 3.952725, Ans. |
| 39. | Principal | \$ 35.40 |
| | Interest for 6 months | 1.062 |
| | “ 9 days | 0.0531 |
| | Amount “ <u>6 m. 9 d.</u> | \$ 36.5151, Ans. |
| 40. | Interest of \$ 450.87 for 3 months . . | \$ 6.76305 |
| | “ “ “ 9 days . . | 0.676305 |
| | “ “ “ <u>3 m. 9 d.</u> . . | \$ 7.439355, Ans. |
| 41. | Interest of \$ 375.50 for 1 month . . | \$ 1.8775 |
| | “ “ “ 6 days . . | 0.3755 |
| | “ “ “ 2 “ . . | 0.1252 — |
| | “ “ “ <u>1 m. 8 d.</u> . . | \$ 2.378+, Ans. |
| 42. | Interest of \$ 225.75 for 5 months . . | \$ 5.64375 |
| | “ “ “ 12 days . . | 0.4515 |
| | “ “ “ <u>5 m. 12 d.</u> . . | \$ 6.09525, Ans. |

43. Interest of \$ 84.82 for 4 months . . . \$ 1.6964
 " " " 18 days . . . 0.25446
 " " " 4 m. 18 d. . . . \$ 1.95086, Ans.
44. Interest of \$ 125.16 for 12 months . . \$ 7.5096
 " " " 5 days . . . 0.1043
 " " " 11 m. 25 d. . . . \$ 7.4053, Ans.
45. Interest of \$ 658.25 for 2 months . . \$ 6.5825
 " " " 12 days . . . 1.3165
 " " " 1 " . . . 0.1097+
 " " " 2 m. 13 d. . . . \$ 8.0087+, Ans.
46. Principal \$ 325.75
 Interest for 4 months 6.515
 " 24 days 1.303
 Amount " 4 m. 24 d. \$ 333.568, Ans.
47. Principal \$ 224.48
 Interest for 6 months 6.7344
 " 15 days 0.5612
 Amount " 6 m. 15 d. \$ 231.7756, Ans.
48. Principal \$ 48.33
 Interest for 18 months 4.3497
 Amount " 1 yr. 6 m. \$ 52.6797, Ans.
49. Principal \$ 365.25
 Interest for 15 months 27.39375
 " 9 days 0.547875
 Amount " 15 m. 9 d. \$ 393.191625, Ans.
51. Interest of \$ 125 for 20 months . . . \$ 12.50
 " " " 10 " . . . 6.25
 " " " 2 " . . . 1.25
 " " " 4 days . . . 0.08+
 " " " 2 yr. 8 m. 4 d. . . . \$ 20.08+, Ans.

| | | |
|-----|---|------------------|
| 52. | Interest of \$ 154.25 for 20 months . . | \$ 15.425 |
| | “ “ “ 1 “ . . | 0.77125 |
| | “ “ “ 6 days . . . | 0.15425 |
| | “ “ “ 1 “ . . . | 0.02571— |
| | “ “ “ 1 yr. 9 m. 7 d. . | \$ 16.376+, Ans. |

| | | |
|-----|--------------------------------------|------------------|
| 53. | Interest of \$ 172 for 20 months . . | \$ 17.20 |
| | “ “ “ 5 “ . . . | 4.30 |
| | “ “ “ 1 day . . . | 0.029— |
| | “ “ “ 2 yr. 1 m. 1 d. . | \$ 21.529—, Ans. |

| | | |
|-----|-------------------------------------|------------------|
| 54. | Principal | \$ 254 |
| | Interest for 14 months | 17.78 |
| | “ 12 days | 0.508 |
| | “ 5 “ | 0.212— |
| | Amount for 1 yr. 2 m. 17 d. | \$ 272.50—, Ans. |

| | | |
|-----|---------------------------------------|------------------|
| 55. | Interest of \$ 132.25 for 40 months . | \$ 26.45 |
| | “ “ “ 10 “ . | 6.6125 |
| | “ “ “ 2 “ . | 1.3225 |
| | “ “ “ 1 “ . | 0.66125 |
| | “ “ “ 18 days . . | 0.39675 |
| | “ “ “ 1 “ . . | 0.02204+ |
| | “ “ “ 4 yr. 5 m. 19 d. . | \$ 35.465+, Ans. |

| | | |
|-----|--------------------------------------|----------------|
| 56. | Interest of \$ 100 for 14 months . . | \$ 7 |
| | “ “ “ 24 days . . . | 0.40 |
| | “ “ “ 2 “ . . . | 0.03+ |
| | “ “ “ 1 yr. 2 m. 26 d. . | \$ 7.43+, Ans. |

| | | |
|-----|-------------------------------------|------------------|
| 57. | Principal | \$ 444 |
| | Interest for 12 months | 26.64 |
| | “ 1 “ | 2.22 |
| | “ 12 days | 0.888 |
| | “ 5 “ | 0.37 |
| | Amount for 1 yr. 1 m. 17 d. | \$ 474.118, Ans. |

(60.)

| | | | |
|--------------------------------|-------|-----|-----------------------|
| Interest of \$ 342.25 for 2 m. | @ 6 % | . . | \$ 3.4225 |
| " " " 18 d. | " " | . . | 1.02675 |
| " " " 2 m. 18 d. | " " | . . | <u>\$ 4.44925</u> |
| " " " " " 2 % | " " | . . | 1.483+ |
| " " " " " 8 % | " " | . . | <u>\$ 5.93+, Ans.</u> |

(61.)

| | | | |
|--------------------------------|-------|-----|-----------------------|
| Interest of \$ 256.84 for 2 m. | @ 6 % | . . | \$ 2.5684 |
| " " " 1 " | " " | . . | 1.2842 |
| " " " 15 d. | " " | . . | 0.6421 |
| " " " 3 m. 15 d. | " " | . . | <u>\$ 4.4947</u> |
| " " " " " 2 % | " " | . . | 1.4982+ |
| " " " " " 8 % | " " | . . | <u>\$ 5.99+, Ans.</u> |

(62.)

| | | | |
|-------------------------------|-------|-------|-----------------------|
| Interest of \$ 79.84 for 4 m. | @ 6 % | . . . | \$ 1.5968 |
| " " " 1 " | " " | . . . | 0.3992 |
| " " " 6 d. | " " | . . . | 0.07984 |
| " " " 2 " | " " | . . . | 0.0266+ |
| " " " 5 m. 8 d. | " " | . . . | <u>\$ 2.1024+</u> |
| " " " " " 3 % | " " | . . . | 1.0512+ |
| " " " " " 1 % | " " | . . . | 0.3504+ |
| " " " " " 10 % | " " | . . . | <u>\$ 3.50+, Ans.</u> |

(63.)

| | | | |
|--|-------|-----|-------------------------|
| Interest of \$ 343.17 for 2 m. | @ 6 % | . . | \$ 3.4317 |
| " " " 1 " | " " | . . | 1.71585 |
| " " " 10 d. | " " | . . | 0.57195 |
| " " " 3 m. 10 d. | " " | . . | <u>\$ 5.7195</u> |
| " " " " " 1 % | " " | . . | 0.9532+ |
| Principal | | | 343.17 |
| Amount of \$ 343.17 for 3 m. 10 d. @ 7 % | | | <u>\$ 349.84+, Ans.</u> |

(64.)

| | | | |
|--|-------|-----|-------------------------|
| Interest of \$ 817.57 for 2 m. | @ 6 % | . . | \$ 8.1757 |
| " " " 18 d. | " " | . . | 2.45271 |
| " " " <u>2 m. 18 d.</u> | " " | . . | <u>\$ 10.62841</u> |
| " " " " " 2 % | . . | | 3.5428+ |
| " " " " " 4 % | . . | | <u>\$ 7.0856+</u> |
| Principal | | | 817.57 |
| Amount of \$ 817.57 for 2 m. 18 d. @ 4 % | . . | | <u>\$ 824.66—, Ans.</u> |

(65.)

| | | | |
|--|-------|-----|-------------------------|
| Int. of \$ 32.25 for 20 m. | @ 6 % | . . | \$ 3.225 |
| " " " 10 d. | " " | . . | 0.05375 |
| " " " <u>1 yr. 8 m. 10 d.</u> | " " | . . | <u>\$ 3.27875</u> |
| " " " " " 1½ % (½ of 6 %) | | | 0.81969— |
| Principal | | | 32.25 |
| Amount of \$ 32.25 for 1 yr. 8 m. 10 d. @ 1½ % | . . | | <u>\$ 36.348+, Ans.</u> |

(66.)

| | | | |
|-------------------------------|-------|-----|-------------------------|
| Interest of \$ 67.43 for 2 m. | @ 6 % | . . | \$ 0.6743 |
| " " " 1 " | " " | . . | 0.33715 |
| " " " 10 d. | " " | . . | 0.11238+ |
| " " " <u>3 m. 10 d.</u> | " " | . . | <u>\$ 1.12383+</u> |
| " " " " " 1 % | . . | | 0.1873 |
| " " " " " 5 % | . . | | <u>\$ 0.9365+, Ans.</u> |

| | |
|---|------------------------|
| 79. Interest of \$ 256.15 for 60 days . . . | \$ 2.5615 |
| " " " 15 " . . . | 0.640375 |
| " " " <u>75 " . . .</u> | <u>\$ 3.201875</u> |
| $\frac{1}{3}$ of \$ 3.201875 | 0.043849+ |
| | <u>\$ 3.158+, Ans.</u> |

$$80. \$57.38 \times 0.07 \times \frac{865}{365} + \$57.38 = \$58.33—, \text{ Ans.}$$

$$81. \$0.02 \times 694 \times 1.8744 + \$187.44 = \$213.46—, \text{ Ans.}$$

$$83. \$21.30 \div \$ (142 \times 0.03) = 5, \text{ Ans.}$$

$$84. \$7.56 \div \$ (36 \times 0.03) = 7, \text{ Ans.}$$

$$85. \$43.80 \div \$ (300 \times 0.02) = 7.3, \text{ Ans.}$$

$$87. \$130.39 \div 1.04 = \$125.375, \text{ Ans.}$$

$$88. \$74.40 \div 1.24 = \$60, \text{ Ans.}$$

$$89. \$240 - \$240 \div 1.20 = \$240 - \$200 = \$40, \text{ Ans.}$$

$$91. \$346.87 \div 1.142 = \$303.74-, \text{ Ans.}$$

$$92. \$456.25 - \$456.25 \div 1.047 = \$456.25 - \$435.77- \\ = \$20.48, \text{ Ans.}$$

$$93. \begin{array}{l} \$490.50 \div 1.09 = \$450, \\ \$490.50 - \$450 = \$40.50, \end{array} \left. \vphantom{\begin{array}{l} \\ \end{array}} \right\} \text{ Ans.}$$

$$94. \$315 - \$315 \div 1.05 = \$315 - \$300 = \$15, \text{ Ans.}$$

$$95. \$350 \div 1.03 = \$339.81-, \text{ Ans.}$$

$$96. \$436 \div 1.008\frac{2}{3} = \$432.25+, \text{ Ans.}$$

$$98. \$44.45 \div \$ (254 \times 0.05) = 3.5. \quad 3 \text{ yr. 6 m., Ans.}$$

$$99. \$15.80 \div \$ (75 \times 0.08) = 2.6\frac{1}{3}. \quad 2 \text{ yr. 7 m. 18 d., Ans.}$$

$$100. \$36 \div \$ (200 \times 0.06) = 3. \quad 3 \text{ yr., Ans.}$$

$$101. \$15.30 \div \$ (72 \times 0.08\frac{1}{2}) = 2.5. \quad 2 \text{ yr. 6 m., Ans.}$$

$$102. \$247.50 \div \$ (1000 \times 0.09) = 2.75. \quad 2 \text{ yr. 9 m., Ans.}$$

$$104. 100 \div 8 = 12.5. \quad 12 \text{ yr. 6 m., Ans.}$$

$$105. 100 \div 6 = 16\frac{2}{3}. \quad 16 \text{ yr. 8 m., Ans.}$$

$$106. \text{ In what time will } \$1 \text{ gain } \$2 \text{ at } 5\%? \\ \$2 \div \$0.05 = 40. \quad 40 \text{ yr., Ans.}$$

$$108. \$13 \div 0.04 = \$325, \text{ Ans.}$$

$$109. \$150 \div 0.04 = \$3750, \text{ Ans.}$$

$$110. \$2000 \div 0.06 = \$33333.33\frac{1}{3}, \text{ Ans.}$$

PARTIAL PAYMENTS.

Page 197 - 199.

(112.)

| | |
|---|-------------------|
| Principal | \$ 525 |
| Interest to Sept. 9, 1890 (1 yr. 3 m. 5 d.) . | 39.813 |
| Amount " | <u>\$ 564.813</u> |
| Payment " | 114.20 |
| New principal " | <u>\$ 450.613</u> |
| Interest to May 15, 1891 (8 m. 6 d.) . . | 18.475 |
| Amount " | <u>\$ 469.088</u> |
| Payment " | 78.28 |
| New principal " | <u>\$ 390.808</u> |
| Interest to Aug. 6, 1892 (1 yr. 2 m. 22 d.) | 28.789 |
| Amount " | <u>\$ 419.597</u> |
| Payment " | 244.38 |
| New principal " | <u>\$ 175.217</u> |
| Interest to Feb. 7, 1894 (1 yr. 6 m. 1 d.) . | 15.799 |
| Amount due " Ans. | <u>\$ 191.016</u> |

(113.)

| | |
|--|-------------------|
| Principal | \$ 586.96 |
| Interest to Jan. 24, 1893 (8 m. 12 d.) . . | 24.652 |
| Amount " | <u>\$ 611.612</u> |
| Payment " | 154.87 |
| New principal " | <u>\$ 456.742</u> |
| Interest to Dec. 6, 1893 (10 m. 12 d.) . . | 23.751 |
| Amount " | <u>\$ 480.493</u> |
| Payment " | 75.18 |
| New principal " | <u>\$ 405.313</u> |
| Interest to Aug. 15, 1894 (8 m. 9 d.) . . | 16.82 |
| Amount " | <u>\$ 422.133</u> |
| Payment " | 124.87 |
| New principal " | <u>\$ 297.263</u> |
| Interest to Dec. 6, 1894 (3 m. 21 d.) . . | 5.499 |
| Amount " | <u>\$ 302.762</u> |
| Payment " | 100.00 |
| New principal " | <u>\$ 202.762</u> |
| Interest to April 24, 1895 (4 m. 18 d.) . | 4.664 |
| Amount due " Ans. | <u>\$ 207.426</u> |

(114.)

| | |
|---|---------------|
| Principal | \$ 163.42 |
| Interest to May 24, 1892 (1 yr. 1 m. 9 d.) | <u>10.867</u> |
| Amount " | \$ 174.287 |
| Payment " | <u>42.18</u> |
| New principal " | \$ 132.107 |
| Interest to Sept. 6, 1893 (1 yr. 3 m. 13 d.) | <u>10.194</u> |
| Amount " | \$ 142.301 |
| Sum of payments " | <u>54.41</u> |
| New principal " | \$ 87.891 |
| Interest to Jan. 25, 1894 (4 m. 19 d.) . . | <u>2.036</u> |
| Amount " | \$ 89.927 |
| Payment " | <u>27.47</u> |
| New principal " | \$ 62.457 |
| Interest to April 15, 1895 (1 yr. 2 m. 21 d.) | <u>4.591</u> |
| Amount due " Ans. | \$ 67.048 |

(115.)

| | |
|---|---------------|
| Principal | \$ 572.76 |
| Interest to April 10, 1890 (10 m. 6 d.) . | <u>34.079</u> |
| Amount " | \$ 606.839 |
| Payment " | <u>125.85</u> |
| New principal " | \$ 480.989 |
| Interest to Nov. 28, 1890 (7 m. 18 d.) . | <u>21.324</u> |
| Amount " | \$ 502.313 |
| Payment " | <u>133.72</u> |
| New principal " | \$ 368.593 |
| Interest to April 15, 1891 (4 m. 18 d.) . | <u>9.891</u> |
| Amount " | \$ 378.484 |
| Payment " | <u>223.08</u> |
| New principal " | \$ 155.404 |
| Interest to Nov. 13, 1891 (6 m. 29 d.) . | <u>6.315</u> |
| Amount due " Ans. | \$ 161.719 |

(117.)

| | | | | | | | |
|----------------------|------|----------|-------|----|----------|-------|-----------------------|
| Amount of | | | | | | | |
| \$1785 | from | Apr. 17, | 1894, | to | Mar. 27, | 1895, | \$1886.15 |
| 300 | " | July 3 | " | " | " | " | \$313.20 |
| 275 | " | Sept. 10 | " | " | " | " | 284.029 |
| 317 | " | Nov. 6 | " | " | " | " | 324.4495 |
| 453 | " | Jan. 2 | " | " | " | " | <u>459.4175</u> |
| | | | | | | | 1381.096 |
| Amount due | | | | | | | Ans. <u>\$505.054</u> |

(118.)

| | | | | | | | |
|---------------------|------|----------|-------|----|---------|-------|----------------|
| Amount of | | | | | | | |
| \$2450 | from | June 4, | 1895, | to | May 12, | 1896, | \$2588.017 |
| 562.50 | " | Sept. 4 | " | " | " | " | \$585.75 |
| 846.37 | " | Dec. 24 | " | " | " | " | 865.837 |
| 362.63 | " | Feb. 18, | 1896, | " | " | " | <u>367.707</u> |
| | | | | | | | 1819.294 |
| Amount due. | | | | | | | Ans. \$768.723 |

COMPOUND INTEREST.

Page 201 - 203.

| | |
|-------------------------|------------------------|
| (120.) | (121.) |
| \$ 300 | \$ 400 |
| 1.04 | 1.07 |
| <u>312</u> | <u>428</u> |
| 1.04 | 1.07 |
| <u>1248</u> | <u>2996</u> |
| 312 | 428 |
| <u>324.48</u> | <u>457.96</u> |
| 1.02 $\frac{1}{2}$ | 1.07 |
| <u>64896</u> | <u>320572</u> |
| 32448 | 45796 |
| 10816 | <u>490.0172</u> |
| 10816 | 400 |
| <u>\$333.1328,</u> Ans. | <u>\$90.0172,</u> Ans. |

(122.)

$$\begin{array}{r}
 \$ 6000 \\
 1.06 \\
 \hline
 6360 \\
 1.06 \\
 \hline
 38160 \\
 6360 \\
 \hline
 6741.60 \\
 1.06 \\
 \hline
 4044960 \\
 674160 \\
 \hline
 7146.096 \\
 1.06 \\
 \hline
 42876576 \\
 7146096 \\
 \hline
 7574.86176 \\
 1.052 \\
 \hline
 1514972352 \\
 3787430880 \\
 757486176 \\
 \hline
 \$ 7968.75457152, \text{ Ans.}
 \end{array}$$

(123.)

$$\begin{array}{r}
 \$ 5000 \\
 1.06 \\
 \hline
 5300 \\
 1.06 \\
 \hline
 31800 \\
 5300 \\
 \hline
 5618 \\
 1.033 \\
 \hline
 16854 \\
 16854 \\
 \hline
 5618 \\
 \hline
 \$ 5803.394, \text{ Ans.}
 \end{array}$$

(124.)

$$\begin{array}{r}
 \$ 12000 \\
 1.06 \\
 \hline
 12720 \\
 1.06 \\
 \hline
 76320 \\
 12720 \\
 \hline
 13483.20 \\
 1.033 \\
 \hline
 4044960 \\
 4044960 \\
 \hline
 1348320 \\
 13928.1456 \\
 12000 \\
 \hline
 \$ 1928.1456, \text{ Ans.}
 \end{array}$$

(125.)

$$\begin{array}{r}
 \$ 12000 \\
 1.04 \\
 \hline
 12480 \\
 1.04 \\
 \hline
 49920 \\
 12480 \\
 \hline
 12979.20 \\
 1.022 \\
 \hline
 2595840 \\
 2595840 \\
 \hline
 1297920 \\
 \hline
 \$ 13264.7424, \text{ Ans.}
 \end{array}$$

(126.)

$$\begin{array}{r}
 \$ 12000 \\
 1.08 \\
 \hline
 12960 \\
 1.08 \\
 \hline
 103680 \\
 12960 \\
 \hline
 13996.80 \\
 1.044 \\
 \hline
 5598720 \\
 5598720 \\
 \hline
 1399680 \\
 \hline
 \$ 14612.6592, \text{ Ans.}
 \end{array}$$

(127.)

$$\begin{array}{r}
 \$ 350 \\
 1.03 \\
 \hline
 1050 \\
 350 \\
 \hline
 360.50 \\
 1.03 \\
 \hline
 108150 \\
 36050 \\
 \hline
 371.315 \\
 1.03 \\
 \hline
 1113945 \\
 371315 \\
 \hline
 382.45445 \\
 1.03 \\
 \hline
 114736335 \\
 38245445 \\
 \hline
 393.9280835 \\
 1.03 \\
 \hline
 1181784 \\
 39392808 \\
 \hline
 \$ 405.7459, \text{ Ans.}
 \end{array}$$

(128.)

$$\begin{array}{r}
 \$ 56 \\
 1.02 \\
 \hline
 112 \\
 56 \\
 \hline
 57.12 \\
 1.02 \\
 \hline
 11424 \\
 5712 \\
 \hline
 58.2624 \\
 1.02 \\
 \hline
 1165248 \\
 582624 \\
 \hline
 59.427648 \\
 1.02 \\
 \hline
 118855296 \\
 59427648 \\
 \hline
 60.61620096 \\
 1.02 \\
 \hline
 1212324 \\
 606162 \\
 \hline
 61.8285 \\
 1.02 \\
 \hline
 1236570 \\
 618285 \\
 \hline
 63.06507 \\
 1.02 \\
 \hline
 126130 \\
 63065 \\
 \hline
 \$ 64.326, \text{ Ans.}
 \end{array}$$

| | |
|-----------------|-------------------------|
| (129.) | 55601346 |
| \$824.75 | 9266891 |
| 1.06 | <u>982.290446</u> |
| <u>494850</u> | 1.0425 |
| 82475 | <u>4911452230</u> |
| <u>874.235</u> | 1964580892 |
| 1.06 | 3929161784 |
| <u>5245410</u> | 982290446 |
| 874235 | <u>1024.037789955</u> |
| <u>926.6891</u> | 824.75 |
| 1.06 | <u>\$199.288—, Ans.</u> |

132. $\$2.252192 \times 60 = \135.13152 , Ans.

133. $\$3.996019 \times 550.50 = \$2199.808+$, Ans.

134. $\$3.660957 \times 95 = \$347.791-$, Ans.

135. $\$0.800944 \times 400 = \320.3776 , Ans.

136. Interest of \$555.55 for 20 months @ 6% \$55.555

| | | | | | | |
|---|---|---|----------------|---|------|-----------------------|
| " | " | " | 40 | " | " | 111.11 |
| " | " | " | 4 | " | " | 11.111 |
| " | " | " | 1 | " | " | 2.778— |
| " | " | " | 5 days | " | " | <u>0.463—</u> |
| " | " | " | 5 y. 5 m. 5 d. | " | " | <u>\$181.02—</u> |
| " | " | " | " | " | @ 1% | <u>30.17—</u> |
| " | " | " | " | " | @ 5% | <u>\$150.85, Ans.</u> |

137. Principal \$175.25

| | | |
|------------------------|-------|---------------------------|
| Interest for 40 months | . . . | 35.05 |
| " " 2 " | . . . | 1.7525 |
| " " 1 " | . . . | 0.87625 |
| " " 6 days | . . . | 0.17525 |
| " " 2 " | . . . | <u>0.05842—</u> |
| Amount for 3y. 7m. 8d. | . . . | <u>\$213.16242—, Ans.</u> |

138. Interest of \$675 for 4 months @ 6% \$13.50

| | | |
|------------------|------|----------------------|
| " " " 1 day | " | 0.1125 |
| " " " 3 m. 29 d. | " | <u>\$13.3875</u> |
| " " " " " | @ 2% | 4.4625 |
| " " " " " | @ 4% | <u>\$8.925, Ans.</u> |

$$139. \$83.35 \times \frac{17}{\frac{85}{\frac{85}{73}}} = \$87.35-, \text{ Ans.}$$

$$140. \$621 \div 1.235 = \$502.83+, \text{ Ans.}$$

$$141. \$237.53 \div 1.05 = \$226.22- \text{ p.w. } \$11.31+ \text{ dis., Ans.}$$

$$142. \$85 \div \$(525 \times 0.05) = 3\frac{1}{2}\text{Y. } 3 \text{ y. } 2 \text{ m. } 26 \text{ d., Ans.}$$

$$143. \$576 \div 0.04 = \$14400, \text{ Ans.}$$

| | |
|--|-----------------|
| 144. Principal | \$653.57 |
| Interest to Jan. 8, 1892 (10 m. 22 d.) | 40.92 |
| Amount | \$694.49 |
| Payment | 150. |
| New principal | \$544.49 |
| Interest to Feb. 27, 1893 (1 yr. 1 m. 19 d.) | 43.31 |
| Amount | \$587.80 |
| Payment | 125. |
| New principal | \$462.80 |
| Interest to Aug. 10, 1894 (1 yr. 5 m. 14 d.) | 47.15 |
| Amount | \$509.95 |
| Payment | 215. |
| New principal | \$294.95 |
| Interest to Dec. 12, 1894 (4 m. 2 d.) | 6.99 |
| Amount due | \$301.94+, Ans. |

$$145. \$1.338226 \times 875 = \$1170.94775, \text{ amount for 5 years.}$$

$$\$1170.94775 \times 1.03 = \$1206.0761825 \quad " \quad 5 \text{ y. } 6 \text{ m.}$$

$$\$1206.08 - \$875 = \$331.08, \text{ Ans.}$$

| | |
|--|----------------|
| 146. Interest of \$323.50 for 40 months @ 6% | \$64.70 |
| " " " 2 " | 3.235 |
| " " " 10 days | 0.539 |
| " " " 3 y. 6 m. 10 d. | \$68.474 |
| " " " @ 1% | 10.412 |
| " " " @ 5% | \$58.062 |
| Principal | 323.50 |
| Amount | \$381.56, Ans. |

| | | |
|------|--|-----------------|
| 147. | Interest of \$37.45 for 40 months @ 6 % | \$7.49 |
| " | " " 4 " " | 0.749 |
| " | " " 18 days " | 0.11235 |
| " | " " 1 " " | 0.00624+ |
| " | " " 3y. 8 m. 19 d. " | \$8.35759+ |
| " | " " " @ 1 % | 1.39293+ |
| " | " " " @ 5 % | \$6.96466 |
| | Principal | 37.45 |
| | Amount " " " " | \$44.41+, Ans. |
| 148. | Interest of \$535.58 for 20 months @ 6 % | \$53.558 |
| " | " " " 10 " " | 26.779 |
| " | " " " 1 " " | 2.6779 |
| " | " " " 6 days " | 0.53558 |
| " | " " " 2 " " | 0.17853— |
| " | " " " 2 y. 7 m. 8 d. " | \$83.729 |
| " | " " " " @ 1½ % | 20.932+ |
| " | " " " " @ 4½ % | \$62.797 |
| | Principal | 535.58 |
| | Amount " " " " | \$598.377, Ans. |

BANK DISCOUNT.

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| | | |
|----|--|-----------------|
| 3. | Interest of \$8646 for 4 months . . . | \$172.92 |
| " | " " 3 days . . . | 4.323 |
| " | " " 4 m. 3 d. . . . | \$177.24, } Ans |
| | Avails . . . \$8646 — \$177.24 = \$8468.76, | |
| 4. | Interest of \$1842 for 60 days @ 6 % | \$18.42 |
| " | " " " 30 " " | 9.21 |
| " | " " " 3 " " | 0.921 |
| " | " " " 93 days " | \$28.551 |
| " | " " " " @ 1 % | 4.7585 |
| " | " " " " @ 7 % | \$33.31, } Ans. |
| | Avails \$1842 — \$33.31 = \$1808.69, | |

For answers without grace, see p. 189.

5. Interest of \$ 489 for 6 m. @ 6 % . \$ 14.67
 " " " 3 d. " " . 0.2445
 " " " 6 m. 3 d. " " . \$ 14.9145
 " " " " " 1 % . 2.48575
 " " " " " 5 % . \$ 12.43, } Ans.
 Avails \$ 489 — \$ 12.43 = \$ 476.57, }
6. Interest of \$ 629 for 2 months . . . \$ 6.29
 " " " 18 days . . . 1.887
 " " " 2 m. 18 d. . . \$ 8.177
 Avails \$ 629 — \$ 8.18 = \$ 620.82, Ans.
8. Amount of \$ 6844 for 4 m. 3 d. . . \$ 6984.302
 Interest of \$ 6984.302 for 2 m. . . \$ 69.84302
 " " " 1 " . . . 34.92151
 " " " 3 d. . . 3.49215
 " " " 3 m. 3 d. . . \$ 108.25668
 Avails . . . \$ 6984.30 — \$ 108.26 = \$ 6876.04, Ans.
10. \$ 300 ÷ 0.9845 = \$ 304.72, Ans.
11. \$ 593.70 ÷ 0.9895 = \$ 600, Ans.
12. \$ 1200 ÷ 0.981 $\frac{1}{4}$ = \$ 1222.10, Ans.

MISCELLANEOUS EXAMPLES.

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13. Int. of \$ 765.85 for 2 months @ 6 % . \$ 7.6584
 " " " 1 " " " . 3.8292
 " " " 3 days " " . 0.3829
 " " " 3 m. 3 d. " " . \$ 11.8705
 " " " " " 2 % . 3.9568
 " " " " " 8 % . \$ 15.83, Ans.
14. Interest of \$ 873.45 for 4 months . . . \$ 17.469
 " " " 3 days . . . 0.4367
 " " " 4 m. 3 d. . . \$ 17.9057
 Proceeds . . \$ 873.45 — \$ 17.91 = \$ 855.54, Ans.

| | |
|--|--|
| 15. Int. of \$ 873.45 for 2 months @ 6 % . . | \$ 8.7345 |
| “ “ “ 20 days “ “ . . | 2.9115 |
| “ “ “ 2 “ “ . . | 0.29115 |
| “ “ “ <u>2 m. 22 d.</u> “ “ . . | <u>\$ 11.93715</u> |
| “ “ “ “ “ 1 % . . | 1.98952 |
| “ “ “ “ “ <u>7 %</u> . . | <u>\$ 13.92667</u> |
| Avails . . . | \$ 873.45 — \$ 13.93 = \$ 859.52, Ans. |

| | |
|--|--|
| 16. Int. of \$ 873.45 for 1 month @ 6 % . . | \$ 4.36725 |
| “ “ “ 24 days “ “ . . | 3.4938 |
| “ “ “ 1 “ “ . . | 0.145575 |
| “ “ “ <u>1 m. 25 d.</u> “ “ . . | <u>\$ 8.006625</u> |
| “ “ “ “ “ $1\frac{1}{2}\%$ ($\frac{1}{2}$ of 6 %) . . | 2.001656 |
| “ “ “ “ “ <u>$7\frac{1}{2}\%$</u> . . | <u>\$ 10.008281</u> |
| Avails . . . | \$ 873.45 — \$ 10.01 = \$ 863.44, Ans. |

| | |
|--|------------------------------------|
| 17. Int. of \$ 315.70 for 2 months @ 6 % . . | \$ 3.157 |
| “ “ “ 15 days “ “ . . | 0.78925 |
| “ “ “ 2 “ “ . . | 0.10523 |
| “ “ “ <u>2 m. 17 d.</u> “ “ . . | <u>\$ 4.05</u> |
| “ “ “ “ “ 2 % . . | 1.35 |
| “ “ “ “ “ <u>4 %</u> . . | <u>\$ 2.70</u> |
| Proceeds . . . | \$ 315.70 — \$ 2.70 = \$ 313, Ans. |

| | |
|--|---------------------------------------|
| 18. Int. of \$ 1125 for 60 days @ 6 % . . | \$ 11.25 |
| “ “ “ 12 “ “ “ . . | 2.25 |
| “ “ “ 2 “ “ “ . . | 0.375 |
| “ “ “ <u>$\frac{74}{100}$</u> “ “ “ . . | <u>\$ 13.875</u> |
| “ “ “ “ “ 1 % . . | 2.3125 |
| “ “ “ “ “ <u>5 %</u> . . | <u>\$ 11.5625</u> |
| Proceeds . . . | \$ 1125 — \$ 11.56 = \$ 1113.44, Ans. |

19. Int. of \$ 768.50 for 1 month @ 6 % . . \$ 3.8425
 " " " 18 days " " . . 2.3055
 " " " 4 " " " . . 0.5123+
 " " " 1 m. 22 d. " " . . \$ 6.6603
 " " " " " $\frac{1}{2}$ % . . 0.5550+
 " " " " " $5\frac{1}{2}$ % . . \$ 6.1053
 Proceeds . . . \$ 768.50 - \$ 6.11 = \$ 762.39, Ans.
20. Interest of \$ 348.56 for 48 days . . . \$ 2.78848
 " " " 5 " . . . 0.29047-
 " " " 53 " . . . \$ 3.079-
 Proceeds . . . \$ 348.56 - \$ 3.08 = \$ 345.48, Ans.
21. Int. of \$ 2916.80 for 2 months @ 6 % . \$ 29.168
 " " " 1 " " " . 14.584
 " " " 24 days " " . 11.6672
 " " " 2 " " " . 0.9722+
 " " " 3 m. 26 d. " " . \$ 56.3914
 " " " " " 2 % . 18.797
 " " " " " 4 % . \$ 37.59
 Proceeds . . \$ 2916.80 - \$ 37.59 = \$ 2879.21, Ans.
22. Int. of \$ 285.75 for 30 days @ 6 % . . \$ 1.42875
 " " " 10 " " " . . 0.47625
 " " " 40 " " " . . \$ 1.905
 " " " " " 1 % . . 0.3175
 " " " " " $\frac{7}{8}$ % . . \$ 2.2225
 Proceeds . . . \$ 285.75 - \$ 2.22 = \$ 283.53, Ans.
23. Int. of \$ 131.40 for 2 months @ 6 % . . \$ 1.314
 " " " 1 " " " . . 0.657
 " " " 2 days " " . . 0.0438
 " " " 3 m. 2 d. " " . . \$ 2.0148
 " " " " " $1\frac{1}{2}$ % (to 6 %) 0.5037
 " " " " " $7\frac{1}{2}$ % . . \$ 2.5185
 Proceeds . . . \$ 131.40 - \$ 2.52 = \$ 128.88, Ans.

24. Int. of \$463.19 for 24 days . . . \$1.85276
 " " " 1 " . . . 0.07719+
 " " " 25 " . . . \$1.92995
 Proceeds . . . \$463.19 - \$1.93 = \$461.26, Ans.

25. Int. of \$2500 for 1 month @ 6 % . . \$12.50
 " " " 24 days " " . . 10.00
 " " " 3 " " " . . 1.25
 " " " 1 m. 27 d. " " . . \$23.75
 " " " " " 2 % . . 7.917-
 " " " " " 8 % . . \$31.667-
 Proceeds . . . \$2500 - \$31.67 = \$2468.33, Ans.

26. Int. of \$916.80 for 2 months @ 6 % . . \$9.168
 " " " 12 days " " . . 1.8336
 " " " 2 m. 12 d. " " . . 11.0016
 " " " " " 1 % . . 1.8336
 " " " " " 7 % . . \$12.8352
 Proceeds . . . \$916.80 - \$12.84 = \$903.96, Ans.

27. Amount of \$987.44 for 6 m. 3 d. @ 8 % . \$1027.60-
 (See Art. 376, Note 4.)
 Interest of \$1027.60 for 6 months . . \$30.828
 " " " 3 days . . . 0.5138
 " " " 6 m. 3 d. . . \$31.34+
 Avails . . . \$1027.60 - \$31.34 = \$996.26, Ans.

28. Interest of \$1027.60 for 4 months . . \$20.552
 " " " 3 days . . . 0.5138
 " " " 3 m. 27 d. . . \$20.04-
 Avails . . . \$1027.60 - \$20.04 = \$1007.56, Ans.

29. \$1027.60, Ans.

| | | |
|-----|--|-----------------|
| 30. | Int. of \$987.44 for 10 months @ 6 % . . | \$49.372 |
| " | " " 18 days " " . . | 2.96232 |
| " | " " 1 " " " . . | 0.16457 |
| " | " " " 10m. 19d. " " . . | <u>\$52.50—</u> |
| " | " " " " " 2 % . . | 17.50 |
| " | " " " " " 8 % . . | <u>\$70</u> |

Value \$987.44 + \$70 = \$1057.44, Ans.

31. $\$150 \div 0.9895 = \$151.59+$. \$151.59, Ans.

32. $\$316 \div 0.981\frac{1}{2} = \$321.819+$. \$321.82, Ans.

33. $\$223.75 \div 0.9925 = \225.44 , Ans.

34. $\$75.15 \div 0.9913 = \75.81 , Ans. { Art. 375, Note 3. }
 $\$75.15 \div 0.9914 = \75.80 , Ans. { Art. 347, Note 2. }

EQUATION OF PAYMENTS.

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(3.)

| Due. | Amount. | Time. | Interest. |
|--------------|---------|-----------|-----------|
| May 7, 1895, | \$75 | 1 m. 6 d. | \$0.45 |
| April 28, " | 155 | 27 " | 0.6975 |
| April 15, " | 98 | 14 " | 0.2287— |

Int. of \$328 for 1 m. = \$1.64) \$1.3762

0.84 m. = 25 d.

April 1, 1895, + 25 d. = April 26, 1895, Ans.

(4.)

| Due. | Amount. | Time. | Interest. |
|----------|---------|-------|-----------|
| May 1, | \$200 | 0 | \$0 |
| Sept. 1, | 600 | 4 m. | 12 |

Int. of \$800 for 1 m. = \$4) \$12

3 m.

May 1, + 3 m. = Aug. 1, Ans.

(5.)

| Due. | Amount. | Time. | Interest. |
|---|---------|----------|-----------------------------|
| Sept. 6, 1895, | \$ 4550 | 5 d. | \$ 3.792 |
| Oct. 6, " | 5075 | 1 m. 5 " | 29.604 |
| Nov. 6, " | 3500 | 2 " 5 " | 37.917 |
| Int. of \$ 13125 for 1 " = \$ 65.625) | | | \$ 71.313 |
| | | | <u>1.086 m. = 1 m. 3 d.</u> |
| Sept. 1, 1895, + 1 m. 3 d. = Oct. 4, 1895, Ans. | | | |

(6.)

| Due. | Amount. | Time. | Interest. |
|---|---------|-----------|------------------------------|
| Feb. 15, 1896, | \$ 1500 | 14 d. | \$ 3.50 |
| March 15, " | 2100 | 1 m. 14 " | 15.40 |
| April 15, " | 2400 | 2 m. 14 " | 29.60 |
| Int. of \$ 6000 for 1 m. = \$ 30) | | | \$ 48.50 |
| | | | <u>1.616 m. = 1 m. 18 d.</u> |
| Feb. 1, 1896, + 1 m. 18 d. = March 19, 1896, Ans. | | | |

(7.)

| Due 2 m. after | Amount. | Time. | Interest. |
|---|---------|----------|------------------|
| March 12, 1895, | \$ 300 | 11 d. | \$ 0.55 |
| " 18, " | 200 | 17 " | 0.567 |
| April 6, " | 600 | 1 m. 5 " | 3.50 |
| July 24, " | 100 | 4 " 23 " | 2.383 |
| Int. of \$ 1200 for 1 m. = \$ 6) | | | \$ 7. |
| | | | <u>1 m. 5 d.</u> |
| March 1, 1895, + 3 m. 5 d. = June 6, 1895, Ans. | | | |

(8.)

| Due 3 m. after | Amount. | Time. | Interest. |
|---|---------|-----------|------------------------|
| June 5, 1895, | \$ 180 | 4 d. | \$ 0.12 |
| " 15, " | 84 | 14 " | 0.196 |
| July 12, " | 240 | 1 m. 11 " | 1.64 |
| " 20, " | 96 | 1 " 19 " | 0.784 |
| Int. of \$ 600 for 1 m. = \$ 3) | | | \$ 2.74 |
| | | | <u>0.91 m. = 27 d.</u> |
| June 1, 1895, + 3 m. 27 d. = Sept. 28, 1895, Ans. | | | |

(9.)

| Due 2 m. after | Amount. | Time. | Interest. |
|----------------|---------|----------|-----------|
| May 14, 1895, | \$ 400 | 13 d. | \$ 0.867 |
| June 4, " | 150 | 1 m. 3 " | 0.825 |
| " 6, " | 80 | 1 " 5 " | 0.467 |
| " 14, " | 170 | 1 " 13 " | 1.218 |

Int. of \$ 800 for 1 m. = \$ 4) \$ 3.377

0.844 m. = 25 d.

May 1, 1895, + 2 m. 25 d. = July 26, 1895, Ans.

(10.)

| Due 3 m. after | Amount. | Time. | Interest. |
|----------------|---------|-----------|-----------|
| Feb. 18, 1895, | \$ 1200 | 17 d. | \$ 3.40 |
| March 25, " | 472 | 1 m. 24 " | 4.248 |
| " 30, " | 468 | 1 " 29 " | 4.602 |
| April 1, " | 500 | 2 " | 5.00 |

Int. of \$ 2640 for 1 m. = \$ 13.20) \$ 17.25

1.3 m. = 1 m. 9 d.

Feb. 1, 1895, + 4 m. 9 d. = June 10, 1895, Ans.

(11.)

| Due 2 m. after | Amount. | Time. | Interest. |
|----------------|---------|-----------|-----------|
| Jan. 8, 1895, | \$ 12 | 7 d. | \$ 0.014 |
| " 24, " | 20 | 23 " | 0.077 |
| Feb. 18, " | 1200 | 1 m. 17 " | 9.40 |
| March 6, " | 4000 | 2 " 5 " | 43.333 |

Int. of \$ 5232 for 1 m. = \$ 26.16) \$ 52.824

2.019 m. = 2 m. 1 d.

Jan. 1, 1895, + 4 m. 1 d. = May 2, 1895, Ans.

(12.)

| Due 30 d. after | Amount. | Time. | Interest. |
|-----------------|---------|-------|-----------|
| Jan. 8, 1895, | \$ 4000 | 7 d. | \$ 4.667 |
| " 14, " | 1200 | 13 " | 2.60 |
| " 18, " | 20 | 17 " | 0.057 |
| " 26, " | 12 | 25 " | 0.05 |

Int. of \$ 5232 for 1 m. = \$ 26.16) \$ 7.374

0.28 m. = 8 d.

Jan. 1, 1895, + 38 d. = Feb. 8, 1895, Ans.

(13.)

| Dne. | Amount. | Time. | Interest. |
|--------------|---------|-------|-----------|
| May 1, 1895, | \$ 400 | 0 | \$ 0 |
| July 1, " | 600 | 2 m. | 6 |
| Sept. 1, " | 800 | 4 " | 16 |

Interest of \$ 1800 for 1 m. = \$ 9) \$ 222 m. 13 d.

May 1, 1895, + 2 m. 13 d. = July 14, 1895, Ans.

(16.)

| Dr. | Time. | Interest. | Cr. | Time. | Interest. |
|----------------|----------|------------------|----------------|----------|------------------|
| \$ 634 | 11 d. | \$ 1.162 | \$ 346 | 17 d. | \$ 0.98 |
| 896 | 24 " | 3.584 | 960 | 1 m. | 4.80 |
| 734 | 1 m. 5 " | 4.282 | 454 | 1 " 11 " | 3.102 |
| 146 | 1 " 17 " | 1.144 | 240 | 2 " | 2.40 |
| <u>\$ 2410</u> | | <u>\$ 10.172</u> | <u>\$ 2000</u> | | <u>\$ 11.282</u> |
| 2000 | | | | | 10.172 |

\$ 410, balance of account.

Balance of interest, \$ 1.11

Interest of \$ 410 for 1 m. = \$ 2.05.

\$ 1.11 ÷ \$ 2.05 = 0.54 ; 0.54 m. = 16 d.

Jan. 1, 1895, - 16 d. = Dec. 16, 1894, Ans.

(17.)

| Dr. | Time. | Interest. | Cr. | Time. | Interest. |
|----------------|------------|------------------|----------------|-----------|------------------|
| \$ 356 | 2 m. 23 d. | \$ 4.925 | \$ 530 | 5 d. | \$ 0.442 |
| 875 | 5 " 16 " | 24.208 | 652 | 4 m. 26 " | 15.865 |
| 433 | 5 " 2 " | 10.969 | 300 | 2 " 15 " | 3.75 |
| <u>\$ 1664</u> | | <u>\$ 40.102</u> | <u>\$ 1482</u> | | <u>\$ 20.057</u> |
| 1482 | | 20.057 | | | |

\$ 182, bal. acct.

\$ 20.045, balance of interest.

Interest of \$ 182 for 1 m. = \$ 0.91.

\$ 20.045 ÷ \$ 0.91 = 22.027 ; 22.027 m. = 1 yr. 10 m. 1 d.

April 1, 1896, + 1 yr. 10 m. 1 d. = Feb. 2, 1898, Ans.

NOTE. The item due first is the first one on the Cr. side, which is due April 6, 1896.

| | | | (18.) | | |
|----------------|-----------|------------------|---------|-----------|-----------|
| Dr. | Time. | Interest. | Cr. | Time. | Interest. |
| \$ 452 | 2 m. 3 d. | \$ 4.746 | \$ 500 | 12 d. | \$ 1. |
| 224 | 7 " | 0.261 | 100 | 2 m. 21 " | 1.35 |
| 150 | 2 " 19 " | 1.975 | 192 | 1 " 17 " | 1.504 |
| 496 | 2 " 26 " | 7.109 | 542 | 1 " 20 " | 4.517 |
| 724 | 4 " 18 " | 16.652 | \$ 1334 | | \$ 8.371 |
| 88 | 3 " 29 " | 1.745 | | | |
| <u>\$ 2134</u> | | <u>\$ 32.488</u> | | | |
| 1334 | | 8.371 | | | |

\$ 800, bal. acct. \$ 24.117, balance of interest.

Interest of \$ 800 for 1 m. = \$ 4.

\$ 24.117 ÷ \$ 4 = 6.029 ; 6.029 m. = 6 m. 1 d.

March 1, 1896, + 6 m. 1 d. = Sept 2, 1896, Ans.

| | | | (19.) | | |
|----------------|------------|------------------|----------------|-----------|------------------|
| Dr. | Time. | Interest. | Cr. | Time. | Interest. |
| \$ 800 | 2 m. 17 d. | \$ 10.267 | \$ 1200 | 26 d. | \$ 5.20 |
| 350 | 1 " 5 " | 2.042 | 800 | 2 m. 11 " | 9.467 |
| 1200 | 4 " 14 " | 26.80 | 850 | 3 " 14 " | 14.733 |
| 200 | 3 " 11 " | 3.367 | 625 | 3 " 17 " | 11.146 |
| <u>\$ 2550</u> | | <u>\$ 42.476</u> | <u>\$ 3475</u> | | <u>\$ 40.546</u> |
| | | 40.546 | 2550 | | |

Balance of interest, \$ 1.93 \$ 925, balance of account.

Interest of \$ 925 for 1 m. = \$ 4.625.

\$ 1.93 ÷ \$ 4.625 = 0.417 ; 0.417 m. = 12.5+ d.

Feb. 1, 1896, — 13 d. = Jan. 19, 1879, the equated time.

Jan. 19, 1896, — 3 m. 3 d. = Oct. 16, 1895, Ans.

| | | | (20.) | | |
|---------------------------|-----------|---------------------------------------|---------|----------|-----------|
| Dr. | Time. | Interest. | Cr. | Time. | Interest. |
| \$ 986 | 19 d. | \$ 3.122 | \$ 158 | 3 d. | \$ 0.079 |
| 152 | 1 m. 16 " | 1.165 | 228 | 17 " | 0.646 |
| 110 | 1 " 25 " | 1.008 | 450 | 1 m. 4 " | 2.55 |
| 317 | 2 " 5 " | 3.434 | 213 | 1 " 19 " | 1.739 |
| 175 | 2 " 19 " | 2.304 | 347 | 2 " 3 " | 3.643 |
| <u>\$ 1740</u> | | <u>\$ 11.033</u> | 116 | 2 " 12 " | 1.392 |
| 1512 | | 10.049 | \$ 1512 | | \$ 10.049 |
| <u>\$ 228, bal. acct.</u> | | <u>\$ 0.984, balance of interest.</u> | | | |

Interest of \$ 228 for 1 m. = \$ 1.14.

$$\$0.984 \div \$1.14 = 0.863+; 0.863 \text{ m.} = 25.89 \text{ d.}$$

The equated time for paying the balance of the account is 3 m. 26 d. after Jan 1, 1896. The note therefore should be dated 23 days after Jan. 1, 1896, or Jan. 24, 1896, Ans.

BONDS.

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2. $\$13265.625 \div 1.06\frac{1}{8} = \12500 , Ans.

3. $\$1000 \times 0.05 \times 12 = \600 , Ans.

4. $\$6 \div \$106 = 0.0535$. $5\frac{35}{100}\%$, Ans.

5. $\$500 \times 1.06\frac{3}{4} \times 2 = \1063.75

$$100 \times 1.047 \times 3 = 314.625$$

$$500 \times 0.992 \times 5 = 2493.75$$

\$ 3872.125, Ans.

6. $\$500 \times 1.00\frac{3}{4} = \503.75

$$2000 \times 1.07\frac{1}{2} = 2155.00$$

$$1500 \times 1.10\frac{1}{4} = 1653.75$$

$$2500 \times 1.09\frac{1}{4} = 2731.25$$

$$3000 \times 1.09375 = 3292.50$$

\$ 10336.25, Ans.

7. $\$32500 \div 1.30 = \25000 , value of bonds.

$$\text{\$ } 25000 \times 0.08 = \text{\$ } 2000, \text{ Ans.}$$

8. $\$500 \times 0.99\frac{1}{4} \times 5 = \2481.25 to invest.

\$ 2481.25 ÷ \$ 106 $\frac{2}{3}$ = 23 and \$ 34.625 left to Cr., Ans.

9. $\$1000 \div 0.05 = \20000 in bonds.

$$\$106\frac{1}{8} \times 200 = \$21225, \text{ Ans.}$$

10. $\$6 \div \$90 = 0.06\bar{3}$. $6\bar{3}\%$, Ans.

11. $\$1000 \times 0.04 \times 3 = \120 , interest received.

$$\begin{array}{r} \$1000 - \$950 = \frac{50, \text{ advance on purchase money}}{\$170, \text{ Ans.}} \end{array}$$

$$12. \begin{array}{l} \$6 \div \$120 = 0.05, \\ \$7 \div \$140 = 0.05, \end{array} \} \text{ or } 5\% \text{ on each, Ans.}$$

13. The per cent of the investment in each case is the same ; therefore, the bonds being redeemed at par, the difference depends on the price paid.

$$1000 \times 1.40 = \$1400 \text{ paid for the 7's.}$$

$$1000 \times 1.20 = \$1200 \text{ " " " 6's.}$$

The 6's are better by \$200, Ans.

$$14. \$15000 \times 0.02\frac{1}{2} = \$375, \text{ income semi-annually from the Boston 5's.}$$

$$\$15000 \times 0.01\frac{1}{2} = \$187.50, \text{ income quarterly from the U. S. 5's.}$$

| | | |
|------------------------------|--------------------------------|--|
| | 1st income U. S. 5's, \$187.50 | |
| | Interest, 9 m., 6 %, 8.437 | |
| 1st income Boston 5's, \$375 | 2d income U. S. 5's, 187.50 | |
| Interest, 6 m., 6 %, 11.25 | Interest, 6 m., 6 %, 5.625 | |
| 2d income Boston 5's, 375 | 3d income U. S. 5's, 187.50 | |
| Total Boston 5's, \$761.25 | Interest, 3 m., 6 %, 2.813 | |
| | 4th income U. S. 5's, 187.50 | |
| | Total U. S. 5's, \$766.875 | |
| | 761.25 | |

Balance in favor of U. S. 5's, Ans. \$5.625

$$15. \$7 \times 12075 \div 115 = \$735, \text{ income Chicago 7's.}$$

$$\$6 \times 12075 \div 105 = 690 \text{ " Miss. 6's.}$$

Balance in favor of Chicago 7's, \$45, Ans.

$$16. \begin{array}{l} \$1250 \div \$50 = 25, \\ \$1042.50 \times 25 = \$26062.50, \end{array} \} \text{ Ans.}$$

$$17. \$7 \div \$108.75 = 0.06\frac{2}{3}\%. \quad 6\frac{2}{3}\% \text{ U. P. R. 7's.}$$

$$\$4 \div \$99.50 = 0.04\frac{1}{2}\%. \quad 4\frac{1}{2}\% \text{ U. S. 4's.}$$

Balance in favor of U. P. R. 7's, $2\frac{7214}{17313}\%$, Ans.

18. Income of \$100 U. S. 4's for 2 yr., $\$8$
 Gain on \$100 U. S. 4's at redemption, $\underline{0.50}$
 Total income on \$100 U. S. 4's, $\$8.50$
 Income of \$100 U. S. 6's for 2 yr., $\$12$
 Loss on \$100 U. S. 6's at redemption, $\underline{6.125}$
 Net income on \$100 U. S. 6's, $\$5.875$
 Balance on each \$100 in favor of U. S. 4's, $\$2.625$, Ans.

(This does not include the interest on the excess of investment in the U. S. 6's, or the interest that might be received on the \$4 and \$6 received at the end of the first year.)

19. $\$115.25 \times 7 = \806.75 , Ans.
 20. $\$1400 \div 0.035 = \40000 , in bonds.
 $\$40000 \times 1.20 = \48000 , to be invested, } Ans.
 $\$40000 \times 0.00\frac{1}{4} = \100 , brokerage, }
 21. $\$3.50 \div \$120 = 0.02\frac{1}{2}\%$, or $\frac{1}{2}\%$, B. and A.
 $\$3 \div \$109 = 0.02\frac{2}{9}\%$, or $2\frac{2}{9}\%$, N. Y. 6's.
 Balance in favor of B. and A. 7's, $2\frac{1}{3}\%$, Ans.

EXCHANGE.

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3. $\$5328 - \$5328 \times 0.00\frac{1}{4} = \5288.04 , Ans.
 4. $\$8750 \times 1.01 = \8837.50 , Ans.
 5. $\$640 - \$640 \times 0.00\frac{1}{4} = \635.20 , Ans.
 6. $\$935 \times 1.00\frac{1}{4} = \939.675 , Ans.
 8. $\$2850 \div 0.995 = \2864.32 , Ans.
 9. $\$773.76 \div 1.00\frac{1}{4} = \768 , Ans.
 10. $\$1876.57 \div 0.995 = \1886 , Ans.
 12. Face of the draft, $\$380$ $\$380$
 Int. \$380, 63 d. @ 7.3%, 4.85, or (Art. 347, Note 2) 4.79
 Value of draft at par, $\underline{\$375.15}$ $\underline{\$375.21}$
 Premium at $\frac{3}{4}\%$, $\underline{2.85}$ $\underline{2.85}$
 Cost of draft, $\underline{\$378.00}$, Ans. $\underline{\$378.06}$

• For answers without grace, see p. 189.

(14.)

Avails of \$1 discounted for 63 d. is $\$1 - \$0.0105 = \$0.9895$.

Cost of draft of \$1 is $\$0.9895 - \$0.01 = \$0.9795$.

Face of draft is $\$325.05 \div 0.9795 = \331.853 , Ans.

(15.)

Avails of \$1 disc'ted for 93 d. @ 8% is $\$1 - \$0.020\frac{3}{4} = \$0.979\frac{1}{4}$.

Cost of draft of \$1 is $\$0.979\frac{1}{4} + \$0.005 = \$0.984\frac{1}{4}$.

Face of draft is $\$782 \div 0.984\frac{1}{4} = \794.446 , Ans.

(16.)

Avails of \$1 discounted for 48 d. is $\$1 - \$0.008 = \$0.992$.

Cost of draft of \$1 is $\$0.992 - \$0.0075 = \$0.9845$.

Face of draft is $\$1378 \div 0.9845 = \1399.695 , Ans.

PARTNERSHIP.

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(13.)

$\$6433 - \$177.70 = \$6255.30$ to pay the debts.

$\frac{\$6255.30}{\$310.55} = \frac{2}{3} = 0.58$, or 58% each, } Ans.
 $\$310.55 \times 0.58 = \180.119 ,

(14.)

$\$3000 \times 10 = \30000

$5500 \times 8 = 44000$

$\$74000$

$\frac{3}{4} = \frac{1}{4}$, A's share.

$\frac{4}{4} = \frac{3}{4}$, B's "

$\$1480 \times \frac{1}{4} = \600 , A's loss, } Ans.

$\$1480 \times \frac{3}{4} = \880 , B's " }

(15.)

$4 \times 7 = 28$ } Taking out { 14 } These rep-
 $5 \times 8 = 40$ } the common { 20 } resent the
 $6 \times 9 = 54$ } factor 2, { 27 } shares.
 $\frac{61}{61}$

$\$91.50 \times \frac{1}{4} = \21 , A's share, }

$\$91.50 \times \frac{3}{4} = \30 , B's " } Ans.

$\$91.50 \times \frac{2}{4} = \40.50 , C's " }

(16.)

$$\$7 \times 11 = \$77$$

$$\$11 \times 8 = \$88$$

$$\$9 \times 12 = \$108$$

$$\underline{\$273}$$

$$\left. \begin{array}{l} \$1365 \times \frac{77}{273} = \$385, \text{ A's share,} \\ \$1365 \times \frac{88}{273} = \$440, \text{ B's " } \\ \$1365 \times \frac{108}{273} = \$540, \text{ C's " } \end{array} \right\} \text{Ans.}$$

NOTE. We omit the two ciphers at the right of all the investments. This does not change their ratio. We shall follow the same principle in all the examples that follow.

(17.)

$$\left. \begin{array}{l} \$20 \times 4 = \$80 \\ 25 \times 5 = 125 \\ 15 \times 3 = 45 \end{array} \right\} \text{A's.} \quad \left. \begin{array}{l} \$20 \times 6 = \$120 \\ 16 \times 3 = 48 \\ 28 \times 3 = 84 \end{array} \right\} \text{B's.} \quad \left. \begin{array}{l} \$20 \times 6 = \$120 \\ 25 \times 3 = 75 \\ 17 \times 3 = 51 \end{array} \right\} \text{C's.}$$

$$\begin{array}{r} \$250 \\ \$252 \\ \underline{\$246} \end{array}$$

$$\left. \begin{array}{l} 250 \\ 252 \\ 246 \end{array} \right\} \begin{array}{l} \text{Taking} \\ \text{out the} \\ \text{factor 2,} \end{array} \left\{ \begin{array}{l} 125 \\ 126 \\ 123 \end{array} \right\} \begin{array}{l} \text{These represent} \\ \text{the shares of} \\ \text{the gain.} \end{array}$$

$$\underline{374}$$

$$\left. \begin{array}{l} \$1500 + \$3845 \times \frac{125}{374} = \$2785.09 \frac{67}{137}, \text{ A's,} \\ \$2800 + \$3845 \times \frac{126}{374} = \$4095.37 \frac{137}{137}, \text{ B's,} \\ \$1700 + \$3845 \times \frac{123}{374} = \$2964.53 \frac{39}{137}, \text{ C's,} \end{array} \right\} \text{Ans.}$$

(18.)

$$\left. \begin{array}{l} \$40 \times 24 = \$960 \\ 30 \times 15 = 450 \\ 35 \times 7 = 245 \end{array} \right\} \begin{array}{l} \text{Rejecting} \\ \text{the fac-} \\ \text{tor 5,} \end{array} \left\{ \begin{array}{l} 192 \\ 90 \\ 49 \end{array} \right\} \begin{array}{l} \text{These rep-} \\ \text{resent the} \\ \text{shares.} \end{array}$$

$$\underline{331}$$

$$\left. \begin{array}{l} \$4000 + \$6620 \times \frac{192}{331} = \$7840, \text{ A,} \\ \$3000 + \$6620 \times \frac{90}{331} = \$4800, \text{ B,} \\ \$3500 + \$6620 \times \frac{49}{331} = \$4480, \text{ C,} \end{array} \right\} \text{Ans.}$$

(19.)

$$\$50 - (\$18 + \$19) = \$13, \text{ C's gain.}$$

$$\begin{array}{l} 18 \left\{ \begin{array}{l} \text{The} \\ \text{shares.} \end{array} \right. \quad \begin{array}{l} \$100 \times \frac{18}{100} = \$36, \text{ A,} \\ \$100 \times \frac{19}{100} = \$38, \text{ B,} \\ \$100 \times \frac{13}{100} = \$26, \text{ C,} \end{array} \end{array} \left. \vphantom{\begin{array}{l} 18 \\ 19 \\ 13 \end{array}} \right\} \text{Ans.}$$

50

20. B's 15 oxen are equivalent to 10 horses,

C's 40 cows are equivalent to 16 horses.

$$\begin{array}{l} 8 \times 7 = 56 \\ 10 \times 10 = 100 \\ 16 \times 12 = 192 \end{array} \left\{ \begin{array}{l} \text{Rejecting} \\ \text{the fac-} \\ \text{tor 4,} \end{array} \right. \left\{ \begin{array}{l} 14 \\ 25 \\ 48 \end{array} \right\} \left\{ \begin{array}{l} \text{The} \\ \text{shares.} \end{array} \right.$$

87

$$\begin{array}{l} \frac{1}{47}, \text{ A's part,} \\ \frac{1}{37}, \text{ B's " } \\ \frac{1}{17}, \text{ C's " } \end{array} \left\{ \begin{array}{l} \\ \\ \end{array} \right\} \text{1st Ans.} \quad \begin{array}{l} \$87 \times \frac{1}{47} = \$14, \text{ A,} \\ \$87 \times \frac{1}{37} = \$25, \text{ B,} \\ \$87 \times \frac{1}{17} = \$48, \text{ C,} \end{array} \left\{ \begin{array}{l} \\ \\ \end{array} \right\} \text{2d Ans.}$$

$$21. (\$4000 \times 12) \div 9 = \$5333.33\frac{1}{3}, \text{ Ans.}$$

22. A's stock, 10 oxen for 15 weeks = 150 oxen for 1 week.

18 cows, or 12 " " 14 " = 168 " " "

96 sheep, " 8 " " 16 " = 128 " " "

A's stock equals 446 " " "

B's stock, 8 oxen for 16 weeks = 128 oxen for 1 week.

15 cows, or 10 " " 12 " = 120 " " "

72 sheep, " 6 " " 15 " = 90 " " "

B's stock equals 338 " " "

C's stock, 24 oxen for 8 weeks = 192 oxen for 1 week.

21 cows, or 14 " " 12 " = 168 " " "

48 sheep, " 4 " " 15 " = 60 " " "

C's stock equals 420 " " "

446 + 338 + 420, or 1204, oxen for 1 week, total stock.

$$\$252.84 \div 1204 = \$0.21, \text{ cost a week for an ox.}$$

$$\$0.21 \times \frac{2}{3} = \$0.14, \text{ " " " a cow.}$$

$$\$0.14 \times \frac{1}{2} = \$0.07, \text{ " " " " sheep.}$$

$$\begin{aligned}
 \$0.01\frac{3}{4} \times 96 \times 16 &= \$26.88, \text{ A pays for sheep.} \\
 \$0.14 \times 18 \times 14 &= \$35.28, \text{ " " " cows.} \\
 \$0.21 \times 10 \times 15 &= \$31.50, \text{ " " " oxen.} \\
 &\quad \$93.66, \text{ " " in all.}
 \end{aligned}$$

$$\begin{aligned}
 \$0.01\frac{3}{4} \times 72 \times 15 &= \$18.90, \text{ B pays for sheep.} \\
 \$0.14 \times 15 \times 12 &= \$25.20, \text{ " " " cows.} \\
 \$0.21 \times 8 \times 16 &= \$26.88, \text{ " " " oxen.} \\
 &\quad \$70.98, \text{ " " in all.}
 \end{aligned}$$

$$\begin{aligned}
 \$0.01\frac{3}{4} \times 48 \times 15 &= \$12.60, \text{ C pays for sheep.} \\
 \$0.14 \times 21 \times 12 &= \$35.28, \text{ " " " cows.} \\
 \$0.21 \times 24 \times 8 &= \$40.32, \text{ " " " oxen.} \\
 &\quad \$88.20, \text{ " " in all.}
 \end{aligned}$$

$$\begin{aligned}
 23. \quad \$3000 \times 5 &= \$15000 \\
 \quad \$2000 \times 7 &= \$14000 \\
 &\quad \$29000, \text{ A's. for the year.}
 \end{aligned}$$

$$\$1800 \times 7 = \$12600, \text{ B's for 7 months.}$$

$(\$29000 - \$12600) \div 5 = \$3280$, what B must have in the last 5 months.

$$\$3280 - \$1800 = \$1480, \text{ Ans.}$$

(24.)

$$\begin{array}{rcl}
 \begin{array}{l} \$50 \times 3 = \$150 \\ 60 \times 5 = 300 \\ 55 \times 4 = 220 \\ \hline \$670 \end{array} & \left. \begin{array}{l} \\ \\ \\ \end{array} \right\} \text{X's.} & \begin{array}{l} \$30 \times 3 = \$90 \\ 45 \times 5 = 225 \\ 55 \times 4 = 220 \\ \hline \$535 \end{array} & \left. \begin{array}{l} \\ \\ \\ \end{array} \right\} \text{Y's.} & \begin{array}{l} \$40 \times 3 = \$120 \\ 35 \times 5 = 175 \\ 45 \times 4 = 180 \\ \hline \$475 \end{array} & \left. \begin{array}{l} \\ \\ \\ \end{array} \right\} \text{Z's.} \\
 \begin{array}{l} 670 \\ 535 \\ 475 \end{array} & \left. \begin{array}{l} \\ \\ \\ \end{array} \right\} \begin{array}{l} \text{Rejecting} \\ \text{the common} \\ \text{factor 5,} \end{array} & \begin{array}{l} \left\{ \begin{array}{l} 134 \\ 107 \\ 95 \end{array} \right\} & \begin{array}{l} \text{These rep-} \\ \text{resent the} \\ \text{shares.} \end{array} \\ \hline 336 \end{array}
 \end{array}$$

$$\begin{array}{l}
 \$6880 \times \frac{134}{336} = \$2743.80\frac{11}{14}, \text{ X's share,} \\
 \$6880 \times \frac{107}{336} = \$2190.95\frac{1}{24}, \text{ Y's " } \\
 \$6880 \times \frac{95}{336} = \$1945.23\frac{11}{14}, \text{ Z's " }
 \end{array} \left. \begin{array}{l} \\ \\ \end{array} \right\} \text{Ans.}$$

(25.)

$$\begin{array}{r}
 \$12 \times 4 = \$48 \\
 15 \times 4 = 60 \\
 6 \times 4 = 24 \\
 \hline
 \$132
 \end{array}
 \left. \begin{array}{l} \\ \\ \\ \end{array} \right\} \begin{array}{l} \\ \text{A's.} \\ \end{array}
 \quad
 \begin{array}{r}
 \$15 \times 4 = \$60 \\
 19 \times 4 = 76 \\
 34 \times 4 = 136 \\
 \hline
 \$272
 \end{array}
 \left. \begin{array}{l} \\ \\ \\ \end{array} \right\} \begin{array}{l} \\ \text{B's.} \\ \end{array}
 \quad
 \begin{array}{r}
 \$16 \times 4 = \$64 \\
 11 \times 4 = 44 \\
 6 \times 4 = 24 \\
 \hline
 \$132
 \end{array}
 \left. \begin{array}{l} \\ \\ \\ \end{array} \right\} \begin{array}{l} \\ \text{C's.} \\ \end{array}$$

$$\begin{array}{r}
 132 \\
 272 \\
 132 \\
 \hline
 134
 \end{array}
 \left. \begin{array}{l} \\ \\ \end{array} \right\} \begin{array}{l} \text{Rejecting the} \\ \text{common fac-} \\ \text{tor 4,} \end{array}
 \quad
 \begin{array}{r}
 33 \\
 68 \\
 33 \\
 \hline
 134
 \end{array}
 \left. \begin{array}{l} \\ \\ \end{array} \right\} \begin{array}{l} \text{These rep-} \\ \text{resent the} \\ \text{shares.} \end{array}$$

$$\$4600 \times 0.12\frac{1}{2} = \$575, \text{ gain.}$$

$$\begin{array}{l}
 \$600 + \$575 \times \frac{3}{13\frac{3}{4}} = \$741.60\frac{2}{3}, \text{ A's,} \\
 \$3400 + \$575 \times \frac{6}{13\frac{3}{4}} = \$3691.79\frac{7}{7}, \text{ B's,} \\
 \$600 + \$575 \times \frac{3}{13\frac{3}{4}} = \$741.60\frac{2}{3}, \text{ C's,}
 \end{array}
 \left. \begin{array}{l} \\ \\ \end{array} \right\} \text{Ans.}$$

(26.)

Gain for two years, \$28000.

B, for services for two years, \$4000.

C's salary for two years, \$10000.

Left of the gain, \$14000 to be divided between A and B in proportion to their investment, \$50000 and \$20000, respectively :

$$\begin{array}{l}
 \text{A's part, } \$50000 + \frac{5}{7} (\$14000) = \$60000, \\
 \text{B's part, } \$20000 + \frac{2}{7} (\$14000) + \$4000 = \$28000, \\
 \text{C's salary for two years} = \$10000,
 \end{array}
 \left. \begin{array}{l} \\ \\ \end{array} \right\} \text{Ans.}$$

(27.)

$$\$13500 - (\$2000 + \$2500 + \$3000) = \$6000$$

$$\begin{array}{r}
 75000 \\
 60000 \\
 40000 \\
 \hline
 35
 \end{array}
 \left. \begin{array}{l} \\ \\ \end{array} \right\} \begin{array}{l} \text{Rejecting} \\ \text{the fac-} \\ \text{tor 5000,} \end{array}
 \quad
 \begin{array}{r}
 15 \\
 12 \\
 8 \\
 \hline
 35
 \end{array}$$

$$\begin{array}{l}
 \text{A's part, } \$2000 + \frac{2}{7} (\$6000) = \$4571.43-, \\
 \text{B's part, } \$2500 + \frac{1}{7} (\$6000) = \$4557.14+, \\
 \text{C's part, } \$3000 + \frac{4}{7} (\$6000) = \$4371.43-,
 \end{array}
 \left. \begin{array}{l} \\ \\ \end{array} \right\} \text{Ans.}$$

$$\begin{array}{rcl}
 & (28.) & \\
 \left. \begin{array}{l} 20 \times 3 = 60 \\ 24 \times 9 = 216 \\ \hline 276 \end{array} \right\} & \text{A's.} & \left. \begin{array}{l} 20 \times 5 = 100 \\ 15 \times 7 = 105 \\ \hline 205 \end{array} \right\} \text{B's.} \\
 \left. \begin{array}{l} 20 \times 9 = 180 \\ 14 \times 3 = 42 \\ \hline 222 \end{array} \right\} & \text{C's.} & 20 \times 12 = 240 \text{ D's.} \\
 \left. \begin{array}{l} 276 \\ 205 \\ 222 \\ 240 \\ \hline 943 \end{array} \right\} = & \left\{ \begin{array}{l} \text{Division} \\ \text{according} \\ \text{to money} \\ \text{invested.} \end{array} \right. & \begin{array}{l} \text{A's salary, \$1000} \\ \text{B's " 1200} \\ \text{C's " 900} \\ \text{D's " 1200} \\ \hline \$4300 \end{array}
 \end{array}$$

To be divided according to investment, \$13000 - \$4300 = \$8700

$$\begin{array}{lcl}
 \text{A's share, } \$1000 + \frac{276}{943} (\$8700) & = & \$3546.34\frac{13}{13} \\
 \text{B's " } \$1200 + \frac{205}{943} (\$8700) & = & \$3091.30\frac{13}{13} \\
 \text{C's " } \$900 + \frac{222}{943} (\$8700) & = & \$2948.14\frac{13}{13} \\
 \text{D's " } \$1200 + \frac{240}{943} (\$8700) & = & \$3414.20\frac{13}{13}
 \end{array}$$

PROPORTION.

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- $$\begin{array}{lcl}
 28. & 4 : 7 = \frac{5}{20} : 35, & \text{Ans.} \\
 29. & \frac{3}{10} : 10 = \frac{40}{120} \text{ m.} : 400 \text{ m.,} & \text{Ans.} \\
 30. & \frac{30}{85} : 85 = \frac{5}{17} : 17, & \text{Ans.} \\
 31. & \frac{37}{74} : \frac{7}{259} = \frac{7}{7} \text{ d.} : 7 \text{ d.,} & \text{Ans.} \\
 32. & \frac{3}{24} : 24 = 6 : 18, & \text{Ans.} \\
 33. & \frac{8}{52} : 52 = \frac{8125}{65000} \text{ m.} : 422500 \text{ m.,} & \text{Ans.} \\
 34. & \frac{24}{20} : \frac{24}{48} = \frac{3}{30} : 72, & \text{Ans.} \\
 35. & \frac{12}{28} : 28 = \frac{5}{60} : \$140, & \text{Ans.} \\
 36. & \frac{5}{25} : \$95 = \frac{5}{5} : 19, & \text{Ans.}
 \end{array}$$

$$37. 9 : 8 = \$ \overset{6}{\cancel{54}} : \$ 48, \text{ Ans.}$$

$$38. 5 : 17 = 16 : 54\frac{2}{3}, \text{ Ans.}$$

$$39. \overset{2}{\cancel{8}} : \overset{4}{\cancel{14}} = \overset{7}{\cancel{82}} : 143\frac{1}{2}, \text{ Ans.}$$

$$40. \$ \overset{5}{\cancel{200}} : \$ \overset{19}{\cancel{950}} = \$ \overset{3}{\cancel{12}} : \$ 57, \text{ Ans.}$$

$$41. \$ \overset{3}{\cancel{28}} : \$ \overset{3}{\cancel{84}} = 6 : 18, \text{ Ans.}$$

$$42. \overset{2}{\cancel{6}} : \overset{3}{\cancel{9}} = 15 : 22\frac{1}{2}, \text{ Ans.}$$

$$43. \overset{2}{\cancel{32}} : \overset{4}{\cancel{22}} = \overset{11}{\cancel{8}} : 5\frac{1}{2}, \text{ Ans.}$$

$$44. \overset{3}{\cancel{7}} : \overset{5}{\cancel{7}} = \$ \overset{1893}{\cancel{5679}} : \$ 9465, \text{ Ans.}$$

$$45. \overset{3}{\cancel{9}} : 9 = \$ \overset{1.25}{\cancel{3.75}} : \$ 90, \text{ Ans.}$$

$$46. \overset{2}{\cancel{10}} : 9 = \overset{2}{\cancel{5}} : 4\frac{1}{2}, \text{ Ans.}$$

$$47. \overset{7}{\cancel{8}} : \overset{5}{\cancel{4}} = 30 : 42\frac{3}{4}, \text{ Ans.}$$

$$48. \$ 500 : \$ 600 = 8 \text{ m.} : 9 \text{ m. } 18 \text{ d., Ans.}$$

$$49. \$ 5 : \$ 9 = 8 \text{ oz.} : 14\frac{2}{3} \text{ oz., Ans.}$$

$$50. \overset{3}{\cancel{9}} : \overset{3}{\cancel{15}} = 8 : 24. \quad 24 - 8 = 16, \text{ Ans.}$$

$$51. \overset{16}{\cancel{30}} : \overset{16}{\cancel{48}} = 40 : 64, \text{ Ans.}$$

$$52. \overset{9}{\cancel{18}} : \overset{8}{\cancel{16}} = 85 : 75\frac{1}{2}, \text{ Ans.}$$

$$53. \overset{3}{\cancel{18}}\overset{8}{\cancel{50}} : \overset{4}{\cancel{12}}\overset{4}{\cancel{00}} = \overset{12}{\cancel{12}} \text{ m.} : 10 \text{ m. } 20 \text{ d., Ans.}$$

$$54. \overset{4}{\cancel{64}} : \overset{14}{\cancel{56}} = \overset{16}{\cancel{16}} : 14. \quad 16 - 14 = 2, \text{ Ans.}$$

$$55. 0.\overset{19}{\cancel{9}}\overset{1000}{\cancel{5}} : 0.675 = \$\overset{3552.63+}{\cancel{5000}} : \text{Ans.}$$

$$56. 100 : 62\frac{1}{2} = \$14 : \$8.75, \text{ Ans.}$$

$$57. \overset{8}{\cancel{18}}\overset{7}{\cancel{0}} : \overset{7}{\cancel{5}} = \overset{21}{\cancel{21}} \text{ ft.} : 7 \text{ ft., Ans.}$$

$$58. \overset{30}{\cancel{7}} : \overset{30}{\cancel{210}} = 5 \text{ ft.} : 150 \text{ ft., Ans.}$$

$$59. \overset{30}{\cancel{5}} : \overset{30}{\cancel{150}} = 7 \text{ ft.} : 210 \text{ ft., Ans.}$$

$$60. \overset{3}{\cancel{210}} : \overset{3}{\cancel{7}} = 150 \text{ ft.} : 5 \text{ ft., Ans.}$$

$$61. \overset{6}{\cancel{30}} : \overset{4}{\cancel{24}} = \overset{15}{\cancel{75}} : 60, \text{ Ans.}$$

$$62. \overset{40}{\cancel{15}} : 64 = \$\overset{40}{\cancel{600}} : \$2560, \text{ Ans.}$$

$$63. \overset{1800}{\cancel{4}} : 15 = \$\overset{1800}{\cancel{7200}} : \$27000, \text{ Ans.}$$

$$64. \overset{126}{\cancel{18000}} : \overset{6}{\cancel{7560}} = \overset{15}{\cancel{15}} : 6, \text{ Ans.}$$

$$65. \overset{3}{\cancel{9}} : \overset{3}{\cancel{8}} = \frac{31}{2} : 10\frac{1}{2}, \text{ Ans.}$$

$$66. \overset{4}{\cancel{4}} : 6 = \overset{4}{\cancel{4}} : 6, \text{ Ans.}$$

$$67. \overset{3}{\cancel{7}} : \frac{\overset{353}{\cancel{14}}}{2} = \$\overset{7.50}{\cancel{22.50}} : \$1323.75, \text{ Ans.}$$

COMPOUND PROPORTION.

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71. $\begin{array}{l} \$ 15 : 50 \\ 300 : 3 \$ 60 \\ 40 : 19 \$ 5 \end{array} \} = \$ 6 : \$ 57, \text{ Ans.}$
72. $\begin{array}{l} 8 : 2 12 \\ 6 : 2 16 \end{array} \} = 900 : 3600, \text{ Ans.}$
73. $\begin{array}{l} \$ 12 : 8 \\ 900 : 4 \$ 600 \end{array} \} = 6 : 16, \text{ Ans.}$
74. $\begin{array}{l} 900 : 4 \$ 600 \\ 4 16 : 6 \end{array} \} = 8 : 12, \text{ Ans.}$
75. $\begin{array}{l} 100 : 600 \\ 2 12 : 9 \end{array} \} = \$ 6 : \$ 27, \text{ Ans.}$
76. $\begin{array}{l} 600 : 100 \\ 9 : 2 12 \end{array} \} = \$ 27 : \$ 6, \text{ or } 6 \%, \text{ Ans.}$
77. $\begin{array}{l} \$ 600 : 100 \\ 6 : 9 27 \end{array} \} = 12 \text{ m.} : 9 \text{ m.}, \text{ Ans.}$
78. $\begin{array}{l} 6 : 3 27 \\ 9 : 2 12 \end{array} \} = \$ 100 : \$ 600, \text{ Ans.}$
79. $\begin{array}{l} 6 12 : 5 30 \\ 8 : 5 40 \end{array} \} = 10 : 125, \text{ Ans.}$
80. $\begin{array}{l} 9 : 36 \\ 4 8 : 2 \end{array} \} = 3 : 3, \text{ Ans.}$
81. $\begin{array}{l} 5 : 2 50 \\ 8 75 : 20 100 \end{array} \} = 9 \text{ oz.} : 7 \frac{1}{2} \text{ lb.}, \text{ Ans.}$
82. $\begin{array}{l} 6 : 15 \\ 12 : 3 18 \end{array} \} = 4 : 15, \text{ Ans.}$
83. $\begin{array}{l} 84 : 420 \\ 5 : 3 \\ 3 : 2 \\ 3 6 : 4 \end{array} \} = 9 : 12, \text{ Ans.}$

$$84. \left. \begin{array}{l} 7 : 4 \\ 60 : 4 \frac{480}{4} \\ 4 : \frac{7}{2} \\ 2 : 4 \end{array} \right\} = \frac{13}{2} : 52, \text{ Ans.}$$

$$85. \left. \begin{array}{l} 10 : 9 \\ 45 : 5 \frac{225}{5} \\ 4 : 5 \\ 3 : 2 \\ 3 : 6 \end{array} \right\} = \frac{8}{2} : 60, \text{ Ans.}$$

$$86. \left. \begin{array}{l} 5 \frac{15}{2} : 6 \\ \frac{17}{2} : 10 \\ 60 : 4 \frac{140}{2} \\ 4 : \frac{9}{2} \\ 7 \frac{21}{4} : \frac{17}{4} \end{array} \right\} = \frac{8}{2} : 8, \text{ Ans.}$$

$$87. \left. \begin{array}{l} 800 : 3 \frac{600}{2} \\ 2 \frac{4}{3} 20 : 3 \frac{15}{2} \end{array} \right\} = 16 : 9, \text{ Ans.}$$

$$88. \left. \begin{array}{l} 6 : 3 \frac{18}{9} \\ 10 : 9 \end{array} \right\} = 180 : 486, \text{ Ans.}$$

$$89. \left. \begin{array}{l} 12 : 8 \\ 9 : 10 \\ 40 : 5 \frac{76}{4} \\ 2 \frac{34}{4} : 40 \\ 48 : 3 \frac{51}{4} \end{array} \right\} = 2 : 10, \text{ Ans.}$$

$$90. \left. \begin{array}{l} 5 \frac{1000}{11} : 9 \frac{4500}{7} \\ 11 : 7 \end{array} \right\} = \frac{22}{2} : 63, \text{ Ans.}$$

$$91. \left. \begin{array}{l} 2 \frac{18}{8} : 35 \frac{70}{9} \\ 8 : 9 \end{array} \right\} = 3 \text{ t.} : 13 \frac{1}{2} \text{ t.}, \text{ Ans.}$$

$$92. \left. \begin{array}{l} 10 : 11 \\ 3 \frac{33}{297} : 18 \frac{540}{540} \end{array} \right\} = 9 : 18, \text{ Ans.}$$

$$93. \left. \begin{array}{l} 4 \text{ } 12 : 8 \\ 6 : 3 \\ 1 : 3 \\ 2 : 1 \end{array} \right\} = \begin{array}{l} 150 \\ 900 : 1200, \text{ Ans.} \end{array}$$

$$94. \left. \begin{array}{l} 2 \text{ } 3 : 70 \\ 2 \text{ } 700 : 350 \\ 80 : 25 \text{ } 400 \end{array} \right\} = \$20 : \$437.50, \text{ Ans.} \\ 5$$

$$95. \left. \begin{array}{l} 2 \text{ } 14 : 18 \\ 9 : 10 \\ 40 : 7 \text{ } 49 \\ 7 : 2 \text{ } 6 \\ 3 : 4 \end{array} \right\} = 4 : 8, \text{ Ans.}$$

$$96. \left. \begin{array}{l} 400 : 100 \\ 3 \text{ } 9 : 12 \end{array} \right\} = \$15 : \$5, \text{ or } 5\%, \text{ Ans.} \\ 5$$

$$97. \left. \begin{array}{l} 2 \text{ } 8 : 5 \text{ } 15 \\ 3 : 9 \text{ } 36 \end{array} \right\} = \$27.50 : \$618.75, \text{ Ans.} \\ 13.75$$

$$98. \left. \begin{array}{l} 80 : 3 \text{ } 24 \\ 25 \text{ } 75 : 16 \text{ } 400 \\ 2 \text{ } 9 : 4 \text{ } 8 \\ 2 : 4 \frac{1}{2} \\ 3 : 10 \end{array} \right\} = 16 : 64, \text{ Ans.}$$

$$99. \left. \begin{array}{l} 5 : 8 \\ 8 : 10 \\ 80 : 480 \\ 3 \text{ } 32 : 28 \\ 6 \text{ } 42 : 40 \end{array} \right\} = 5 : 50, \text{ Ans.} \\ 5$$

$$100. \left. \begin{array}{l} 17.96 \\ 5 : 359.20 \\ 4 : 1 \end{array} \right\} = \$100 : \$1796, \text{ Ans.}$$

$$101. \begin{array}{l} 4 : 5 \\ 5 : 6.50 \\ 1.62\frac{1}{2} \end{array} \} = 7 \text{ oz.} : 11\frac{3}{8} \text{ oz., Ans.}$$

$$102. \begin{array}{l} 25 : 48 \\ 15 : 8 \end{array} \} = 1500^4 : 1536, \text{ Ans.}$$

SQUARE ROOT.

Page 246-248.

| | | |
|----------|------------|--------------------|
| 13. 194 | 21. 5432 | 30. 66.67 |
| 15. 963 | 22. 3579 | 33. 21.7 |
| 16. 3115 | 24. 4012 | 34. 6.88 |
| 17. 4628 | 25. 6007 | 37. $\frac{1}{3}$ |
| 18. 5616 | 26. 190075 | 39. $4\frac{1}{3}$ |
| 19. 9462 | 28. 0.27 | 40. $6\frac{2}{3}$ |
| 20. 2345 | 29. 5.32 | 42. 0.751469+ |

CUBE ROOT.

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| | | |
|--------------------|--|-----------|
| 49. 637 | 60. 7.7 | 69. 4.38+ |
| 50. 435 | 61. 0.412 | 70. 2.43— |
| 51. 3003 | 62. 759375 | 71. 1.67— |
| 52. 45.9 | 63. $\frac{17576}{125} = 140\frac{7}{125}$ | 72. 2.63— |
| 53. 3.45 | 64. 9.22 | 73. 94.6+ |
| 54. 9.09 | 65. 2.828 | 74. 49.9+ |
| 55. $6\frac{1}{3}$ | 66. 0.775— | 75. 6.53— |
| 56. $9\frac{1}{3}$ | 67. 0.75 | 76. 114+ |
| 57. $7\frac{1}{3}$ | 68. 1.26— | 77. 89.5— |
| 59. 1.82 | | |

MENSURATION.

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$$2. (18 \times 7) \text{ sq. ft.} = 126 \text{ sq. ft., Ans.}$$

$$3. (5 \times 15) \text{ sq m} = 75 \text{ sq. yd., Ans.}$$

$$5. (45 + 55 + 60) \div 2 = 80$$

$$\begin{aligned} & \sqrt{(80 - 45) \times (80 - 55) \times (80 - 60) \times 80} \\ & = \sqrt{35 \times 25 \times 20 \times 80} = \sqrt{1400000} = 1183+. \\ & \quad 1183+ \text{ sq. ft., Ans.} \end{aligned}$$

$$6. (117 + 221 + 250) \div 2 = 294$$

$$\begin{aligned} & \sqrt{(294 - 117) \times (294 - 221) \times (294 - 250) \times 294} \\ & = \sqrt{177 \times 73 \times 44 \times 294} = \sqrt{167146056} = 12928+. \\ & \quad 12928+ \text{ sq rd., Ans.} \end{aligned}$$

$$7. (25 \times 8) \text{ sq. yd.} = 200 \text{ sq. yd., Ans.}$$

$$8. \left(\frac{13 + 19}{2} \times 9 \right) \text{ sq. ft.} = 144 \text{ sq. ft., Ans.}$$

$$9. \left(\frac{24 + 20}{2 \times 12} \times 12 \right) \text{ sq. ft.} = 22 \text{ sq. ft., Ans.}$$

$$10. (34 \times 8 + 34 \times 9) \text{ sq. in.} = (34 \times 17) \text{ sq. in.} = 578 \text{ sq. in., Ans.}$$

$$11. (35.8 + 13.32 + 38.9) \div 2 = 44.01$$

$$\begin{aligned} & \sqrt{(44.01 - 35.8) \times (44.01 - 13.32) \times (44.01 - 38.9) \times 44.01} \\ & = \sqrt{8.21 \times 30.69 \times 5.11 \times 44.01} \\ & = \sqrt{56664.66352239} = 238.04+. \\ & \quad \text{Area of the first triangle, } 238+ \text{ sq. yd.} \end{aligned}$$

$$(35.84 + 17.8 + 38.9) \div 2 = 46.27$$

$$\begin{aligned} & \sqrt{(46.27 - 35.84) \times (46.27 - 17.8) \times (46.27 - 38.9) \times 46.27} \\ & = \sqrt{10.43 \times 28.47 \times 7.37 \times 46.27} \\ & = \sqrt{101260.19582679} = 318.21+. \end{aligned}$$

Area of the second triangle, 318.2+ sq. yd.

$$238+ \text{ sq. yd.} + 318.2+ \text{ sq. yd.} = 556.3- \text{ sq. yd., Ans.}$$

$$12. (20 + 30 + 40) \div 2 = 45$$

$$\sqrt{(45 - 20) \times (45 - 30) \times (45 - 40) \times 45} \\ = \sqrt{25 \times 15 \times 5 \times 45} = \sqrt{84375} = 290.47+.$$

Area of the first triangle, 290.47+ sq. rd.

$$(40 + 25 + 35) \div 2 = 50$$

$$\sqrt{(50 - 40) \times (50 - 25) \times (50 - 35) \times 50} \\ = \sqrt{10 \times 25 \times 15 \times 50} = \sqrt{187500} = 433.01+.$$

Area of the second triangle, 433.01+ sq. rd.

$$(35 + 18 + 27) \div 2 = 40$$

$$\sqrt{(40 - 35) \times (40 - 18) \times (40 - 27) \times 40} \\ = \sqrt{5 \times 22 \times 13 \times 40} = \sqrt{57200} = 239.16+.$$

Area of the third triangle, 239.16+ sq. rd.

$$290.47 \text{ sq. rd.} + 433.01 \text{ sq. rd.} + 239.16 \text{ sq. rd.}$$

$$= 962.64 \text{ sq. rd.} = 6 \text{ a. } 2.64+ \text{ sq. rd., Ans.}$$

$$14. \overset{3}{12} \times \frac{3}{4} \times \frac{3}{2} \times 25 \text{ bd. ft.} = 337\frac{1}{2} \text{ bd. ft., Ans.}$$

$$15. 16 \times \frac{1}{\cancel{p}} \times \cancel{p} \times 55 \text{ bd. ft.} = 880 \text{ bd. ft., Ans.}$$

$$16. \overset{6}{18} \times \frac{2}{\cancel{p}} \times 75 \text{ bd. ft.} = 900 \text{ bd. ft., Ans.}$$

$$17. \overset{5}{18} \times \frac{5}{\cancel{p}} \times 45 \text{ bd. ft.} = 562\frac{1}{2} \text{ bd. ft., Ans.}$$

$$20. \sqrt{24^2 + 16^2} = 28.84+. \quad 28.84+ \text{ ft., Ans.}$$

$$21. \sqrt{26^2 + 14^2} = 29.53-. \quad 29.53- \text{ ft., Ans.}$$

$$22. \sqrt{36^2 + 24^2 + 12^2} = 44.9-. \quad 44.9- \text{ in., Ans.}$$

$$23. \sqrt{57^2 - 18^2} = 54+. \quad 54+ \text{ ft., Ans.}$$

$$24. \sqrt{50^2 - 40^2} = 30. \quad 30 \text{ ft., Ans.}$$

$$25. \sqrt{108^2 - 75^2} + \sqrt{108^2 - 45^2} = 175.9-. \quad 175.9- \text{ ft., Ans.}$$

$$26. \sqrt{67^2 - 40^2} = 53.75-$$

The height to which it now reaches is 53.75 feet.

$$\sqrt{67^2 - 63.75^2} = 20.61+.$$

The distance from the wall to reach 10 feet higher is 20.61+ feet.

$$40 \text{ ft.} - 20.61+ \text{ ft.} = 19.39- \text{ ft., Ans.}$$

$$27. 15 \times 2 \times 3.1416 \text{ m} = 94.248 \text{ yd., Ans.}$$

$$28. 57 \div 3.1416 \text{ rd.} = 18.14+ \text{ rd., Ans.}$$

$$29. 19 \div 3.1416 \text{ ft.} = 6.05- \text{ ft., Ans.}$$

$$30. 56 \times 3.1416 \text{ m} = 175.9296 \text{ yd., Ans.}$$

$$31. 12^2 \times 0.7854 \text{ sq m} = 113.0976 \text{ sq. yd., Ans.}$$

$$32. 80^2 \times 0.7854 \text{ sq. ft.} = 5026.56 \text{ sq. ft., Ans.}$$

$$33. 9 \times (9 \div 3.1416) \text{ sq. in.} = 25.78+ \text{ sq. in., Ans.}$$

$$34. \sqrt{116 \div 0.7854} \text{ ft.} = \text{diameter.}$$

$$3.1416 \times \sqrt{116 \div 0.7854} \text{ ft.} = 38.1798+ \text{ ft., Ans.}$$

$$35. 108^2 \times 0.7854 \text{ sq. ft.} - 80^2 \times 0.7854 \text{ sq. ft.} \\ = (108^2 - 80^2) 0.7854 \text{ sq. ft.} = 4134.3456 \text{ sq. ft., Ans.}$$

$$36. 95^2 \times 0.7854 \text{ sq. rd.} = 7088.235 \text{ sq. rd., area of A's lot.} \\ \text{A's : B's} = 7088.235 : 750 = 472.549 : 50, \text{ or A's is} \\ 9.45098 \text{ times B's, Ans.}$$

$$37. 4 \sqrt{160} \text{ rd.} = 50.5964+ \text{ ft., perimeter of the square lot.} \\ 3.1416 \times \sqrt{160 \div 0.7854} \text{ rd.} = 44.84- \text{ rd., circumfer-} \\ \text{ence of the circular lot.}$$

$$50.5964+ \text{ rd.} - 44.84- \text{ rd.} = 5.7564+ \text{ rd., Ans.}$$

$$39. 36 : 72 = 23^2 : \text{Ans.}^2, \text{ or } 1 : 2 = 529 : 1058$$

$$\sqrt{1058} \text{ rd.} = 32.5+ \text{ rd., Ans.}$$

40. $6 : 10 = 18^2 : \text{Ans.}^2$, or $3 : 5 = 324 : 540$
 $\sqrt{540} \text{ ft.} = 23.24\text{— ft., Ans.}$
41. $\sqrt{361} : \sqrt{225} = 42 \text{ ft.} : \text{Ans., or}$
 $19 : 15 = 42 \text{ ft.} : 33\frac{3}{5} \text{ ft., Ans.}$
42. $5^2 : 2^2 = 50 \text{ m.} : \text{Ans., or}$
 $25 : 4 = 50 \text{ m.} : 8 \text{ m., Ans.}$
43. $\sqrt{49} : \sqrt{256} = 3 \text{ cm} : \text{Ans., or}$
 $7 : 16 = 3 \text{ cm} : 6\frac{3}{8} \text{ cm, Ans.}$
44. $45^2 : 25^2 = \$50 : \text{Ans., or}$
 $9 \quad 9 \quad 5 \quad 5$
 $45 \times 45 : 25 \times 25 = \$50 : \$15.43+, \text{ Ans.}$
45. $2^2 : 9^2 = 217 \text{ qt.} : \text{Ans., or}$
 $4 : 81 = 217 \text{ qt.} : 4394.25 \text{ qt., Ans.}$
46. $1.5^2 : 3.5^2 = 10 \text{ gal.} : \text{Ans., or}$
 $3 \quad 3 \quad 7 \quad 7$
 $15 \times 15 : 35 \times 35 = 10 \text{ gal.} : 54\frac{2}{3} \text{ gal., Ans.}$
47. $36^2 \times 0.7854 \text{ sq. ft.} - 30^2 \times 0.7854 \text{ sq. ft.}$
 $= 396 \times 0.7854 \text{ sq. ft.} = 311.0184 \text{ sq. ft., Ans.}$
48. $\sqrt{10} : \sqrt{8} = \$45 : \text{Ans., or}$
 $5 \quad 4 \quad 9$
 $10 : 8 = 45 \times 45 : 1620$
 $\sqrt{1620} = 40.249. \quad \40.25—, Ans.
49. $24 \times 20 \text{ sq. in.} + 6 \times 6 \times 2 \text{ sq. in.} = 552 \text{ sq. in., Ans.}$
50. $(2 \times 3.1416 \times 30) \text{ sq. yd.} + (2^2 \times 0.7854 \times 2) \text{ sq. yd.}$
 $= 188.496 \text{ sq. yd.} + 6.2832 \text{ sq. yd.} = 194.7792 \text{ sq. yd., Ans.}$
51. $(15^2 \times 0.7854 \times 25) \text{ sq. in.} = 4417.875 \text{ sq. in., Ans.}$
52. $(3 \times 4 \times 15) \text{ cu. ft.} = 180 \text{ cu. ft., Ans.}$
53. $(15^2 \times 0.7854 \times 14) \text{ cu. in.} = 2474.01 \text{ cu. in., Ans.}$

$$54. (\sqrt{5 \times 3 \times 1 \times 9} \times 6) \text{ cu. in.} = 69.7+ \text{ cu. in., Ans.}$$

$$55. \{(6 \times 6 + 4 \times 4 + 6 \times 4) \times 4\} \text{ cu. ft.} = 304 \text{ cu. ft., Ans.}$$

$$56. \{(24^2 \times 0.7854 + 18^2 \times 0.7854 + 24 \times 18 \times 0.7854) \times 14\} \text{ cu. in.} \\ = (1332 \times 0.7854 \times 14) \text{ cu. in.} = 14646.1392 \text{ cu. in., Ans.}$$

$$57. \{(21^2 \times 0.7854 + 24^2 \times 0.7854 + 21 \times 24 \times 0.7854) \\ \times 4 \div 231\} \text{ gal.} = (1521 \times 0.7854 \times 4 \div 231) \text{ gal.} \\ = (1194.5934 \times 4 \div 231) \text{ gal.} = 20.6856 \text{ gal., Ans.}$$

$$58. (100 \times 3.1416 \times 100) \text{ sq. in.} = 31416 \text{ sq. in., Ans.}$$

$$59. (6 \times 3.1416 \times 6) \text{ sq. in.} = 113.0976 \text{ sq. in., Ans.}$$

$$60. (2 \times 3.1416 \times 2) \text{ sq. ft.} = 12.5664 \text{ sq. ft., Ans.}$$

$$61. (0.5236 \times 100^3) \text{ cu. in.} = 523600 \text{ cu. in., Ans.}$$

$$62. (0.5236 \times 8^3) \text{ cu. in.} = 268.0832 \text{ cu. in., Ans.}$$

$$63. (0.5236 \times 3^3) \text{ cu. ft.} = 14.1372 \text{ cu. ft., Ans.}$$

$$64. (0.5236 \times 4^3) \text{ cu. in.} = 33.5104 \text{ cu. in., Ans.}$$

$$67. 1^{\text{st}} : 2^{\text{d}} = (\frac{11}{4})^3 : 2^3 = 11^3 : 8^3 = 1331 : 512, \text{ or more} \\ \text{than } 2\frac{1}{2} \text{ times as large, Ans.}$$

$$68. 2 : 1 = 15^3 : \text{Ans.}^3, \text{ or}$$

$$2 : 1 = 15^3 : 1687.5. \quad \sqrt[3]{1687.5} = 11.9+$$

$$11.9+ \text{ ft.} = \text{altitude of the cone taken from the top.}$$

$$15 \text{ ft.} - 11.9+ \text{ ft.} = 3.1- \text{ ft., Ans.}$$

$$69. 10 : 12 = 22^8 \text{ in.} : \text{Ans.}^8, \text{ or } 5 : 6 = 10648 : 12777.6 \\ \sqrt[3]{12777.6} \text{ in.} = 23.38\text{— in., Ans.}$$

$$70. 6^8 : 7^8 = 950 \text{ lb.} : \text{Ans., or} \\ 216 : 343 = 950 \text{ lb.} : 1508\frac{61}{108} \text{ lb., Ans.}$$

$$71. 32 : 19.2 = 20^8 : \text{Ans.}^8, \text{ or} \\ 1 : 0.6 = 8000 : 4800 \\ \sqrt[3]{4800} \text{ in.} = 16.9\text{— in., Ans.}$$

$$72. \{9(25 + 35)\} \text{ sq. ft.} = 540 \text{ sq. ft., Ans.}$$

73. The sides of each triangle subtracted from half the sum ($40\frac{1}{2}$ and $34\frac{1}{2}$) of the sides in order give for the 1st triangle $12\frac{1}{2}$, $17\frac{1}{2}$, and $10\frac{1}{2}$, and for the 2d, $10\frac{1}{2}$, $19\frac{1}{2}$, and $4\frac{1}{2}$.

$$\sqrt{\frac{3}{2} \times \frac{3}{2} \times \frac{21}{2} \times \frac{81}{2}} + \sqrt{\frac{21}{2} \times \frac{3}{2} \times \frac{3}{2} \times \frac{81}{2}} \\ = \sqrt{1488.375} + \sqrt{508.822} \\ = 122.40\text{—} + 22.53\text{—} = 483.3\text{—}$$

or by simplifying,

$$= \frac{3}{2} \times \frac{3}{2} \sqrt{35 \times 21} + \frac{3}{2} \times \frac{3}{2} \sqrt{7 \times 13 \times 69} \\ = \frac{3}{2} (5 \times 7 \sqrt{15} + \sqrt{6279}) = \frac{3}{2} (135.55 + 79.25) \\ = 483.3\text{—} \qquad \text{Ans. } 483.3\text{—sq. ft.}$$

$$74. 15 \times \frac{3}{2} \times \frac{4}{3} = 180, \text{ Ans.}$$

$$75. 20 \times \frac{1}{4} \times 4 \times 35 = 700, \text{ Ans.}$$

$$76. 40 \times \frac{10}{2} \times \frac{1 + 1\frac{1}{2}}{2} \times \frac{10 + 12}{2} = 10 \times \frac{9}{4} \times \frac{11}{22} = 495, \text{ Ans.}$$

$$77. \$ (25 \times \frac{17}{1\frac{1}{2}} \times \frac{3}{2} \times \frac{0.003}{0.018}) = \$0.96, \text{ Ans.}$$

$$78. \$ (18 \times \frac{1}{3} \times 5 \times 50 \times 0.0125) = \$18.75, \text{ Ans.}$$

$$\begin{aligned} 79. & (\sqrt{80^2 - 45^2} + \sqrt{80^2 - 55^2}) \text{ ft.} \\ & = (\sqrt{6400 - 2025} + \sqrt{6400 - 3025}) \text{ ft.} \\ & = (\sqrt{4375} + \sqrt{3375}) \text{ ft.} = 124.25 \text{ ft., Ans.} \end{aligned}$$

$$\begin{aligned} 80. & (\frac{1}{2})^2 : (1\frac{1}{4})^2 = 500 : \text{Ans., or} \\ & \frac{1}{4} : \frac{225}{16} = \frac{125}{500} : 28125, \text{ Ans.} \end{aligned}$$

$$81. 4 \times 2 \times \frac{5}{2} \times \frac{1728}{2150.4} = 16\frac{1}{4}, \text{ Ans.}$$

$$82. 10 \times \frac{3}{6} \times 5 \times \frac{1728}{2150.4} = 241\frac{1}{4}, \text{ Ans.}$$

$$83. \frac{2150.4 \times 100}{1728 \times 8 \times 4} \text{ ft.} = \frac{35}{9 \times 8 \times 4} \text{ ft.} = 3\frac{5}{8} \text{ ft., Ans.}$$

MISCELLANEOUS EXAMPLES.

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$$67. \frac{12^6}{228} \times \frac{2}{19} \times \frac{3}{\frac{22}{11}} = 3\frac{3}{11}, \text{ Ans.}$$

$$68. \frac{1}{3} \times \frac{2}{7} \times \frac{289}{10} + \frac{79}{210} = \frac{578}{210} + \frac{79}{210} = 3\frac{2}{7}, \text{ Ans.}$$

$$69. \begin{array}{r} 0.375 \\ 0.16 \\ 0.4 \\ 0.008 \\ 1.1 \\ 4.5 \\ 10.05 \\ \hline 16.593 \end{array} 16.593, \text{ Ans.}$$

$$70. \left. \begin{array}{l} (143\frac{1}{2} + 17\frac{1}{4}) \div 2 = 80\frac{3}{8} \text{ greater,} \\ 80\frac{3}{8} - 17\frac{1}{4} = 63\frac{1}{8} \text{ less,} \end{array} \right\} \text{ Ans.}$$

$$71. \text{ Sum, } 1\frac{4}{3}; \text{ Diff., } \frac{2}{3}; \text{ Prod., } \frac{2}{3}; \text{ Quo., } 2\frac{1}{3}, \text{ Ans.}$$

(72.)

$$18 = 2 \times 3 \times 3$$

$$48 = 2 \times 2 \times 2 \times 2 \times 3$$

$$72 = 2 \times 2 \times 2 \times 3 \times 3$$

$$66 = 2 \times 3 \times 11$$

$$\left. \begin{array}{l} \text{G. C. D.} = 2 \times 3 = 6, \\ \text{L. C. M.} = 72 \times 2 \times 11 = 1584, \end{array} \right\} \text{ Ans.}$$

NOTE. In finding the L. C. M., multiply the greatest of the given numbers by the factors of the other numbers that this greatest number does not contain.

$$73. 0.75 \times 0.0008 \div 0.02 = 0.03, \text{ Ans.}$$

$$74. \frac{8}{4} \times \frac{8}{9} \times \frac{8}{8} = \frac{1}{4} = 0.25, \text{ Ans.}$$

$$75. \frac{\$ \frac{246}{7}}{\frac{123}{7}} \times \frac{\frac{2}{4}}{\frac{123}{7}} \times \frac{517}{\frac{3619}{10}} = \frac{\$ 2068}{5} = \$ 413.60, \text{ Ans.}$$

$$76. \left(\frac{2}{7} + \frac{3}{11} + \frac{4}{13} \right) \times 1.43 = \frac{867}{1001} \times \frac{0.01}{1.43} = 1.23\frac{1}{2}, \text{ Ans.}$$

77. The number multiplied by $\frac{1}{2}$ of itself gives $12\frac{1}{2}$; hence the number multiplied by itself gives $12\frac{1}{2} \times 2 = 25$; and therefore $\sqrt{25}$, or 5, is the number required.

$$78. 10 \times 16\frac{1}{2} \times 8\frac{3}{4} \times \frac{144}{32} = 165 \times \frac{13}{26} \times \frac{3}{4} = 6435, \text{ Ans.}$$

$$79. \begin{array}{r} 0.87 \\ 365 \\ \hline 2555 \\ 2920 \\ \hline 317.55 \end{array} \begin{array}{l} \text{d.} \\ 24 \\ \hline 220 \\ 110 \\ \hline 13.2 \end{array} \begin{array}{l} \text{h.} \\ 60 \\ \hline 12.0 \end{array} \text{m.} \quad 317 \text{ d. } 13 \text{ h. } 12 \text{ m., Ans.}$$

$$80. \frac{\begin{array}{r} 0.8 \\ 17.6 \end{array} \times 60 \times 60 \times 24}{\begin{array}{r} 5280 \\ 22 \end{array}} = 288, \text{ Ans.}$$

$$81. \frac{\begin{array}{r} 3125 \\ 25000 \end{array}}{13.9 \times \frac{24}{3}} = 74\frac{2}{3}, \text{ Ans.}$$

$$82. 1728 \div (8 \times 4 \times 2) = 27 \text{ bricks to make a cubic foot.}$$

$$1000000 \text{ bricks make } \frac{1000000}{27} \text{ cu. ft.}$$

$$\sqrt[3]{\frac{1000000}{27}} = \frac{100}{3}. \quad 33\frac{1}{3} \text{ ft., Ans.}$$

$$83. \$1000 \div 0.06 = \$16666.66\frac{2}{3}, \text{ Ans.}$$

$$84. \sqrt{0.00125 \times 800} = \sqrt{1} = 1, \text{ Ans.}$$

$$85. \frac{\$739}{0.02\frac{1}{2}} \times 0.97\frac{1}{2} = \$739 \times 39 = \$28821, \text{ Ans.}$$

$$86. \frac{1}{160 \times 30\frac{1}{4}} = \frac{1}{4840} = \frac{5}{242} \text{ of } \frac{1}{100}, \text{ or } \frac{5}{242}\%, \text{ Ans.}$$

87. If a square is drawn with sides each equal to the base of the triangle, it will contain 4 acres.

$$\sqrt{4 \times 160} \text{ rd.} = \text{short side of triangle.}$$

$$\sqrt{4 \times 160 \times 2} \text{ rd.} = 35.777+ \text{ rd., hypotenuse, Ans.}$$

$$\begin{array}{l} 88. \quad 44 \times 5280 \div 10 = 23232, \text{ fore wheel,} \\ \quad 44 \times 5280 \div 12 = 19360, \text{ hind wheel,} \end{array} \left. \vphantom{\begin{array}{l} 44 \times 5280 \div 10 \\ 44 \times 5280 \div 12 \end{array}} \right\} \text{Ans.}$$

$$\begin{array}{l} 89. \quad \$3.50 \times 1540 + \$2040 = \$7430, \text{ cost.} \\ \quad \$5.50 \times 1510 \times 2240 \div 2000 = \$9301.60, \text{ received.} \\ \quad \$9301.60 - \$7430 = \$1871.60, \text{ Ans.} \end{array}$$

$$\begin{array}{r} 90. \quad \begin{array}{r} 24) 37817 \text{ h.} \\ 365 \overline{) 1575} \text{ d. } 17 \text{ h.} \\ \hline 4 \text{ y. } 115 \text{ d.} \end{array} \qquad \begin{array}{r} 0.8535 \text{ h.} \\ 60 \\ \hline 51.2100 \text{ m.} \\ 60 \\ \hline 12.60 \text{ sec.} \end{array} \end{array}$$

$$4 \text{ y. } 115 \text{ d. } 17 \text{ h. } 51 \text{ m. } 12.6 \text{ sec., Ans.}$$

$$\begin{array}{l} 91. \quad 10 \div 1.275 = 7, \text{ and rem. } 1.075. \\ \quad 7 \text{ gold dollars, and } \$1.075 \text{ in cur., Ans.} \end{array}$$

$$\begin{array}{r} 92. \quad \begin{array}{r} 2 \text{ m. } 59 \text{ sec.} \\ 15 \\ \hline 44' 45'', \text{ Ans.} \end{array} \qquad \begin{array}{r} 93. \quad 55 \text{ m.} \\ 15 \\ \hline 13\frac{3}{4}^\circ \text{ east, Ans.} \end{array} \end{array}$$

$$\begin{array}{l} 94. \quad \$0.76 \times 125 \times 25 + \$15.96 = \$2390.96, \text{ cost.} \\ \quad \$2390.96 \times 1.30 = \$3108.248, \text{ must receive net.} \\ \quad \$3108.248 \div 0.98 = \$3171.68+, \text{ collected on sales including } 2\% \text{ for collecting.} \\ \quad \$3171.68 \div 0.95 = \$3338.60+, \text{ total amount of sales.} \\ \quad 125 \times 25 \times 0.97 \text{ gal.} = 3031.25 \text{ gal., it will measure in selling.} \\ \quad \$3338.60 \div 3031.25 = \$1.10+, \text{ Ans.} \end{array}$$

$$95. \quad \$726 \div (1.20 \times 1.10 \times 1.10) = \$500, \text{ Ans.}$$

$$96. \quad \text{As often as H invested } \$1, \text{ G invested } \$2. \text{ As often as H invested } \$1, \text{ he received } \$0.90, \text{ and G received } 110\% \text{ of } \$2, \text{ or}$$

\$2.20; or G received \$1.30 more than H for every \$1 H invested. Hence, H invested $\$260 \div 1.30$, or \$200, and G \$400, Ans.

97. 51, 52, 54 are the three smallest numbers that answer the conditions. There is an infinite number of such numbers.

$$98. \left. \begin{array}{l} (21\frac{1}{2} + 7\frac{1}{3}) \div 2 = 14\frac{5}{6} \text{ greater,} \\ 14\frac{5}{6} - 7\frac{1}{3} = 6\frac{1}{2} \text{ less,} \end{array} \right\} \text{Ans.}$$

$$99. \frac{26\frac{2}{3}}{33}, \frac{11}{33}, \frac{4\frac{29}{30}}{33}, \frac{56\frac{1}{10}}{33}, \text{Ans.}$$

$$100. 1 \text{ rd.} \div 0.11 = 9 \text{ rd. } 1 \text{ ft. } 6 \text{ in., Ans.}$$

101. If the number multiplied by $\frac{2}{3}$ of itself gives 27, then the number multiplied by itself gives $\frac{2}{3}$ of 27, or 36. Hence, $\sqrt{36}$, or 6, is the number, Ans.

$$102. 7007, \text{Ans.}$$

$$103. 1 \div \frac{2\frac{3}{4}}{4\frac{1}{2}} = 1 \div \frac{26}{45} = \frac{45}{26} = 1\frac{19}{26}, \text{Ans.}$$

$$104. \begin{array}{llll} \text{A and B can do } \frac{1}{2} \text{ in one day.} \\ \text{A " C " } \frac{1}{5} \text{ " } \\ \text{B " C " } \frac{1}{8} \text{ " } \end{array}$$

Hence A and B + A and C + B and C, that is, A, B, and C, each taken twice, can do $\frac{1}{2} + \frac{1}{5} + \frac{1}{8}$, or $\frac{37}{80}$, in one day, and A, B, and C can do $\frac{1}{2}$ of $\frac{37}{80}$, or $\frac{37}{160}$, in one day.

$$\begin{array}{ll} \text{A can do } \frac{37}{160} - \frac{1}{8}, \text{ or } \frac{17}{160}, \text{ in one day.} \\ \text{B " } \frac{37}{160} - \frac{1}{5}, \text{ or } \frac{7}{160} \text{ " } \\ \text{C " } \frac{37}{160} - \frac{1}{4}, \text{ or } \frac{7}{160} \text{ " } \end{array}$$

$$\begin{array}{ll} \text{A's share, } 17 & \text{A's } \$18.50 \times \frac{17}{37} = \$8.50, \\ \text{B's " } 13 & \text{B's } \$18.50 \times \frac{7}{37} = \$6.50, \\ \text{C's " } 7 & \text{C's } \$18.50 \times \frac{7}{37} = \$3.50, \end{array} \left. \vphantom{\begin{array}{l} 17 \\ 13 \\ 7 \end{array}} \right\} \text{Ans.}$$

37

105. Depends upon the present date.

| | |
|---|--------------------|
| 106. Principal | \$ 1475 |
| Interest to Sept. 17, 1895 (3 m. 14 d.) . . | 25.567 |
| Amount " " | <u>\$ 1500.567</u> |
| Payment " " | 200 |
| New principal " " | <u>\$ 1300.567</u> |
| Interest to Jan. 3, 1896 (3 m. 17 d.) . . | 23.193 |
| Amount " " | <u>\$ 1323.76</u> |
| Payment " " | 300 |
| New principal " " | <u>\$ 1023.76</u> |
| Interest to Aug. 2, 1896 (6 m. 30 d.) . . | 35.832 |
| Amount " " | <u>\$ 1059.592</u> |
| Payment " " | 400 |
| New principal " " | <u>\$ 659.592</u> |
| Interest to Sept. 30, 1896 (1 m. 28 d.) . . | 6.376 |
| Amount due " " Ans. | <u>\$ 665.968</u> |

| | |
|--|--------------------|
| 107. Principal | \$ 1500 |
| Interest to July 12, 1893 (1 yr. 6 m.) . . | 135 |
| Amount " " | <u>\$ 1635</u> |
| Payments to " " | 229 |
| New principal " " | <u>\$ 1406</u> |
| Interest to June 18, 1895 (1 yr. 11 m. 6 d.) | 163.096 |
| Amount " " | <u>\$ 1569.096</u> |
| Payment " " | 75 |
| Amount due " " Ans. | <u>\$ 1494.096</u> |

| | |
|---|------------------|
| 108. Principal | \$ 50 |
| Interest to April 15, 1895 (3 m. 14 d.) . . | 0.867 |
| Amount " " | <u>\$ 50.867</u> |
| Payment " " | 25.87 |
| New principal " " | <u>\$ 24.997</u> |
| Interest to Jan. 1, 1896 (8 m. 17 d.) . . | 1.07 |
| Amount due " " Ans. | <u>\$ 26.067</u> |

| | |
|---|-------------------------|
| 109. Principal | \$ 1500 |
| Interest to Oct. 25, 1894 (1 yr. 10 m. 26 d.) | 171.50 |
| Amount " " | <u>\$ 1671.50</u> |
| Payments to " " | 475 |
| New principal " " | <u>\$ 1196.50</u> |
| Interest to March 4, 1895 (4 m. 7 d.) . . | 25.326 |
| Amount due " " | Ans. <u>\$ 1221.826</u> |

(110.)

 $\$6.50 \times 750 = \4875 , paid for flour.

Interest \$4875, July 1 to Aug. 1, 24.375

 $\$0.15 \times 750 = 112.50$, freight.

Interest \$112.50, July 12 to Aug. 1, 0.375

Total cost of flour, \$5012.25, Aug. 1.

$\$7.20 \times 750 = \5400 , nominal receipts for flour. Face of the note, \$2700. Value of the note, Aug. 1, is \$2700 — \$82.35, or \$2617.65. Value of what he receives for flour, Aug. 1, is \$2700 + \$2617.65 = \$5317.65.

 $\$5317.65 - \$5012.25 = \$305.40$, Ans.

No grace, \$306.75, Ans.

NOTE. Mr. M.'s having the note discounted at a bank has nothing to do with what he made.

111. $\$6.50 \times 100 = \650 , paid for flour. $0.50 \times 100 = 50$

Interest of \$700 for 4 m., 14

Total cost of flour, \$714, at time of sale.
$$\begin{aligned} \$7.50 \times 100 - \$714 &= \$36, \text{ gain,} \\ \$36 \div \$714 &= 0.05\frac{1}{17}, \text{ or } 5\frac{1}{17}\%, \end{aligned} \quad \left. \vphantom{\begin{aligned} \$7.50 \times 100 - \$714 &= \$36, \text{ gain,} \\ \$36 \div \$714 &= 0.05\frac{1}{17}, \text{ or } 5\frac{1}{17}\%, \end{aligned}} \right\} \text{Ans.}$$

112. Bank discount of \$800 for 186 days, \$24.80, Ans.

No grace, \$24.00, Ans.

(113.)

$\$200000 \times 0.05 = \10000 , sum that must be paid to stockholders.

 $\$10000 \div 0.97 = \$10309.278+$, Ans.

| | |
|-----------------------------------|-----------------------------|
| 114. | $\$1.25 \times 400 = \500 |
| Discount of 5 % | 25 |
| Agent's receipts | <u>\$475</u> |
| Agent's commission, 2 % | 9.50 |
| Must pay to me | <u>\$465.50, Ans.</u> |

115. $\$15000 \div (0.90 \times 0.90 \times 0.90) = \$20576.13+, \text{ Ans.}$

| | |
|------------------------------------|-------------------|
| 116. Cost of the goods | \$10000 |
| Profit, 6 % | 600 |
| Broker's receipts | <u>\$10600</u> |
| Broker's commission, 5 % | 530 |
| Owner receives | <u>\$10070</u> |
| Cost of the goods | 10000 |
| Owner receives as profit | <u>\$70, Ans.</u> |

| | |
|--|------------------|
| 117. Value of the goods sold | \$1343.78 |
| Broker's commission, 4 % | 53.75 |
| Merchant receives | <u>\$1290.03</u> |
| $\$1290.03 \div 1.04 = \$1240.41+, \text{ Ans.}$ | |

| | |
|------|--|
| 118. | A and B can do $\frac{1}{2}$ in one day. |
| | B " C " $\frac{1}{3}$ " |
| | A " C " $\frac{1}{3}$ " |

Hence, A and B + B and C + A and C, that is, A, B, and C, each taken twice, can do $\frac{1}{2} + \frac{1}{3} + \frac{1}{3}$, or $\frac{5}{6}$, in one day, and A, B, and C can do $\frac{1}{2}$ of $\frac{5}{6}$, or $\frac{5}{12}$, in one day.

A can do $\frac{5}{240} - \frac{1}{6}$, or $\frac{29}{240}$, in one day.

B " $\frac{5}{240} - \frac{1}{6}$, or $\frac{19}{240}$, "

C " $\frac{5}{240} - \frac{1}{6}$, or $\frac{11}{240}$, "

| | |
|---|--------|
| A can do it alone in $1 \div \frac{29}{240}$, or $\frac{240}{29}$, or $8\frac{8}{29}$ days, | } Ans. |
| B " " $1 \div \frac{19}{240}$, or $\frac{240}{19}$, or $12\frac{12}{19}$ " | |
| C " " $1 \div \frac{11}{240}$, or $\frac{240}{11}$, or $21\frac{9}{11}$ " | |
| A, B, C can do it together in $1 \div \frac{5}{12}$, or $\frac{12}{5}$, or $4\frac{4}{5}$ " | |

119. 12 cords of wood are equivalent to $\frac{2}{3}$ of 12, or $6\frac{2}{3}$, tons of coal.

$$\begin{aligned} \$4 \times 12 &= \$48, \text{ cost of wood.} \\ \$6.50 \times 6\frac{2}{3} &= \$43\frac{1}{3}, \text{ " coal.} \\ &\quad \$4\frac{2}{3}, \text{ Ans.} \end{aligned}$$

120. $\frac{3}{4}$ c. — $\frac{1}{4}$ c. = $\frac{1}{2}$ c., gain on one egg.

$$\$8.00 \div \$0.005 = 1600, \text{ Ans.}$$

121. $\$0.085 \times 63 = \5.355 , received.

$$\$0.07 \times 72 = \$5.04, \text{ paid.}$$

$$\text{Gain, } \$0.315, \text{ Ans.}$$

122. The man paid \$4 on his horse, and $(\$4 \div \frac{2}{3} =) \$3\frac{1}{2}$ on his carriage, as often as he paid \$1 on his harness; that is, of every $\$8\frac{1}{2}$ paid, \$1 was for the harness. Hence the

$$\left. \begin{array}{ll} \text{Harness cost } \$500 \div 8\frac{1}{2}, \text{ or } \$60, \\ \text{Horse " } \$60 \times 4, \text{ or } \$240, \\ \text{Carriage " } \$60 \times 3\frac{1}{2}, \text{ or } \$200, \end{array} \right\} \text{ Ans.}$$

123. Wife, $\frac{1}{3}$; son, $\frac{2}{3} \times \frac{1}{4} = \frac{1}{6}$; daughter, $\{1 - (\frac{1}{3} + \frac{1}{6})\} \times \frac{1}{2} = \frac{1}{2} \times \frac{1}{2} = \frac{1}{4}$. $\$6846\frac{2}{3}$, Ans.

124. It makes no difference what the *terms* of the fraction are; if the numerator is $\frac{2}{3}$ of the denominator, the value of the fraction is $\frac{2}{3}$, Ans.

125. $16 : 15\frac{1}{2} = \$16 : \15.50 , amount he ought to pay.

$$\$16 - \$15.50 = \$0.50, \text{ Ans.}$$

126. $\frac{2}{3}$ of a bushel of corn, or $\frac{2}{3}$ of a bushel of wheat, is worth $\$0.63 \times \frac{2}{3}$, or $\$0.42$; hence, a bushel of wheat is worth $\$0.42 \div \frac{2}{3}$, or $\$0.98$. $\$24.50 \div \$0.98 = 25$. 25 bush., Ans.

127. $\frac{10 \times 5\frac{1}{2}}{2}$ hours it takes him to paint one side of the fence.

$\frac{10 \times 5\frac{1}{2}}{2} \times 8 \times 9$ square feet on one side of the fence.

$\left(\frac{10 \times 5\frac{1}{2}}{2} \times 8 \times 9\right) \div 6$, length of fence in feet, = 315 ft., Ans.

128. $\$300 \div 0.9750\overline{17} = \307.67 , Ans. No grace, $\$307.48$.

129. $164.31+$, Ans.

130. $2 \times 264 \text{ ft.} + 2 \times 192 \text{ ft.} = 2 \times 456 \text{ ft.} = 912 \text{ ft.}$, length of the ditch.

$\frac{304}{912 \times 2 \times \frac{2}{3}}$ cu. yd. = $202\frac{2}{3}$ cu. yd., Ans.

131. B's : A's = $2250 : 1800 = 5 : 4$.

$\$6000 \times 3 = \18000

$\$10000 \times 9 = \90000

B's stock = $\$108000$ a month.

$5 : 4 = \$108000 : \86400 , A's stock a month.

A's stock for 5 months is equivalent to $\$50000$ for one month ; hence, $\$86400 - \50000 , or $\$36400$, for one month is equivalent to A's stock for the remaining 7 months ; or he must have had in $\$36400 \div 7 = \5200 ; $\$10000 - \$5200 = \$4800$, Ans.

132. If the number multiplied by $\frac{3}{4}$ of itself gives 54, then the number multiplied by itself gives $\frac{3}{4}$ of 54, or 81. Hence, $\sqrt{81}$, or 9, is the number, Ans.

133. $\left. \begin{array}{rcl} 72 : & 9 \\ 10 : & 12 \\ 540 : 200 : 19950 \end{array} \right\} = 24 : 57, \text{ Ans.}$

$$134. \quad \$10000 \times 1.10\frac{1}{4} = \$11025$$

$$\quad \$10000 \times 1.03 = \$10300$$

$$\text{Interest on latter (1 m. 19 d.)} = \quad 95.28-$$

$$\quad \underline{\$21420.28, \text{ Ans.}}$$

$$135. \quad \begin{array}{l} \text{1st deposit} \\ \text{Interest, 6 m.} \\ \text{Amount} \\ \text{2d deposit} \end{array} \quad \begin{array}{r} \$20 \\ 0.50 \\ \$20.50 \\ 20 \end{array}$$

$$\underline{\$40.50}$$

$$\begin{array}{l} \text{Interest, 6 m.} \\ \text{Amount} \end{array} \quad \begin{array}{r} 1.01 \\ \$41.51 \end{array}$$

$$\begin{array}{l} \text{3d deposit} \\ \text{Interest, 6 m.} \\ \text{Amount} \end{array} \quad \begin{array}{r} 20 \\ 1.54 \\ \$63.05 \end{array}$$

$$\begin{array}{l} \text{4th deposit} \\ \text{Interest, 6 m.} \\ \text{Amount} \end{array} \quad \begin{array}{r} 20 \\ 2.08 \\ \$85.13 \end{array}$$

$$\begin{array}{l} \text{5th deposit} \\ \text{Interest, 6 m.} \\ \text{Amount} \end{array} \quad \begin{array}{r} 20 \\ 2.63 \\ \$107.76 \end{array}$$

$$\begin{array}{l} \text{6th deposit} \\ \text{Interest, 6 m.} \\ \text{Amount} \end{array} \quad \begin{array}{r} 20 \\ 2.63 \\ \$107.76 \end{array}$$

$$\begin{array}{l} \text{Interest, 6 m.} \\ \text{Amount} \end{array} \quad \begin{array}{r} 2.08 \\ \$85.13 \end{array}$$

$$\begin{array}{l} \text{4th deposit} \\ \text{Interest, 6 m.} \\ \text{Amount} \end{array} \quad \begin{array}{r} 20 \\ 2.08 \\ \$85.13 \end{array}$$

$$\begin{array}{l} \text{5th deposit} \\ \text{Interest, 6 m.} \\ \text{Amount} \end{array} \quad \begin{array}{r} 20 \\ 2.63 \\ \$107.76 \end{array}$$

$$\begin{array}{l} \text{6th deposit} \\ \text{Interest, 6 m.} \\ \text{Amount} \end{array} \quad \begin{array}{r} 20 \\ 2.63 \\ \$107.76 \end{array}$$

$$\begin{array}{l} \text{Interest, 6 m.} \\ \text{Amount} \end{array} \quad \begin{array}{r} 2.08 \\ \$85.13 \end{array}$$

$$\begin{array}{l} \text{4th deposit} \\ \text{Interest, 6 m.} \\ \text{Amount} \end{array} \quad \begin{array}{r} 20 \\ 2.08 \\ \$85.13 \end{array}$$

$$\begin{array}{l} \text{5th deposit} \\ \text{Interest, 6 m.} \\ \text{Amount} \end{array} \quad \begin{array}{r} 20 \\ 2.63 \\ \$107.76 \end{array}$$

$$\begin{array}{l} \text{6th deposit} \\ \text{Interest, 6 m.} \\ \text{Amount} \end{array} \quad \begin{array}{r} 20 \\ 2.63 \\ \$107.76 \end{array}$$

$$\begin{array}{l} \text{Interest, 6 m.} \\ \text{Amount} \end{array} \quad \begin{array}{r} 2.08 \\ \$85.13 \end{array}$$

$$\begin{array}{l} \text{4th deposit} \\ \text{Interest, 6 m.} \\ \text{Amount} \end{array} \quad \begin{array}{r} 20 \\ 2.08 \\ \$85.13 \end{array}$$

$$\begin{array}{l} \text{5th deposit} \\ \text{Interest, 6 m.} \\ \text{Amount} \end{array} \quad \begin{array}{r} 20 \\ 2.63 \\ \$107.76 \end{array}$$

$$\begin{array}{l} \text{6th deposit} \\ \text{Interest, 6 m.} \\ \text{Amount} \end{array} \quad \begin{array}{r} 20 \\ 2.63 \\ \$107.76 \end{array}$$

$$\text{Ans. } \$127.76$$

136. If the carpet is laid lengthwise of the room, it will take 7 lengths each 20 ft. 10 in. long.

$$\frac{20\frac{2}{3} \times 7}{3} \text{ yd.} = 48\frac{1}{3} \text{ yd.}$$

If the carpet is laid the other way, it will take 9 lengths each 15 ft. 8 in. long.

$$\left. \begin{array}{l} \frac{15\frac{2}{3} \times 9}{3} \text{ yd.} = 47 \text{ yd.,} \\ \$0.95 \times 47 = \$44.65, \end{array} \right\} \text{ Ans.}$$

$$137. 47 \text{ yd.} - \frac{1\cancel{5} \times 20 \times 4}{\cancel{3} \times 3 \times 3} \text{ yd.} = 2\frac{1}{3} \text{ yd., Ans.}$$

| (138.) | | | | | |
|-------------------|------------|------------------|----------------|----------------------|------------------|
| Dr. | Time. | Interest. | Cr. | Time. | Interest. |
| \$ 550 | 1 m. 16 d. | \$ 4.217 | \$ 480 | 18 d. | \$ 1.44 |
| 180 | 12 " | 0.36 | 150 | 5 m. 23 " | 4.325 |
| 600 | 4 " 15 " | 13.50 | 450 | 6 " 6 " | 13.95 |
| <u>\$ 1330</u> | | <u>\$ 18.077</u> | 200 | 5 " 24 " | 5.80 |
| 1280 | | | <u>\$ 1280</u> | | <u>\$ 25.515</u> |
| \$ 50, bal. acct. | | | | | 18.077 |
| | | | | Balance of interest, | \$ 7.438 |

Interest of \$ 50 for 1 m. = \$ 0.25.

\$ 7.438 ÷ \$ 0.25 = 29.752; 2 yr. 5 m. 23 d.

The equated time for paying the balance of the account is 2 yr. 5 m. 23 d. before June 1, 1894, or Dec. 9, 1891.

| | | |
|------|------------------------|-------------------|
| 139. | 1st deposit | \$ 200 |
| | Interest, 6 m. | 6 |
| | Amount | <u>\$ 206</u> |
| | 2d deposit | 200 |
| | | <u>\$ 406</u> |
| | Interest, 6 m. | 12.18 |
| | Amount | <u>\$ 418.18</u> |
| | 3d deposit | 200 |
| | | <u>\$ 618.18</u> |
| | Interest, 6 m. | 18.55 |
| | Amount | <u>\$ 636.73</u> |
| | 4th deposit | 200 |
| | | <u>\$ 836.73</u> |
| | Interest, 6 m. | 25.10 |
| | Amount | <u>\$ 861.83</u> |
| | 5th deposit | 200 |
| | | <u>\$ 1061.83</u> |

| | |
|---------------------------|-------------------|
| Brought forward | \$ 1061.83 |
| Interest, 6 m. | 31.85 |
| Amount | <u>\$ 1093.68</u> |
| 6th deposit | 200 |
| | <u>\$ 1293.68</u> |
| Interest, 6 m. | 38.81 |
| Amount | <u>\$ 1332.49</u> |
| 7th deposit | 200 |
| | <u>\$ 1532.49</u> |
| Interest, 6 m. | 45.97 |
| Amount | <u>\$ 1578.46</u> |
| 8th deposit | 200 |
| Ans. | <u>\$ 1778.46</u> |

140. $\sqrt{2704} = 52$. 52 feet square, Ans.

141. $\sqrt{\sqrt{16 \times 81}} = \sqrt{4 \times 9} = 2 \times 3 = 6$, Ans.

142. $\sqrt{9 \times 12^2} = 3 \times 12 = 36$, Ans.

143. If $\frac{3}{4}$ of the field is cut off, the part cut off will be a square containing $\frac{3}{4}$ of 25 acres, or 3000 square rods.

$$\left. \begin{array}{l} \sqrt{3000} \text{ rd.} = 54.77+ \text{ rd. width,} \\ 54.77+ \text{ rd.} \times \frac{4}{3} = 73+ \text{ rd. length,} \end{array} \right\} \text{Ans.}$$

144. $\sqrt{121 \times 64} \text{ rd.} = 11 \times 8 \text{ rd.} = 88 \text{ rd.}$, Ans.

145. $4 \times \sqrt{160 \times 272\frac{1}{4}} \text{ ft.} = 834.8+ \text{ ft.}$, Ans.

146. $\sqrt{160 \times 15 + 1} \text{ rd.} = 49 \text{ rd.}$, Ans.

147. $(216 + 24) \times 2 : \sqrt{216 \times 24} \times \frac{2}{4} = \$312 : \text{Ans.}$

$$\begin{array}{cc} 5 & 3 \\ 240 & : 144 = \$312 : \$187.20, \text{ Ans.} \end{array}$$

| (148.) | | | |
|---|---------|----------|------------------------|
| Due. | Amount. | Time. | Interest. |
| July 3, 1878, | \$ 530 | 2 d. | \$ 0.176 $\frac{2}{3}$ |
| Oct. 9, “ | 740 | 3 m. 8 “ | 12.086 $\frac{2}{3}$ |
| Feb. 6, 1879, | 630 | 7 “ 5 “ | 22.575 |
| Interest of \$ 1900 for 1 m. = \$ 9.50) | | | <u>\$ 34.838</u> |
| | | | 3 m. 20 d. |

July 1, 1894, + 3 m. 20 d. = Oct. 21, 1894, Ans.

| | | | |
|------|------------------------------|---------|-----------------|
| 149. | Interest of \$ 1680 for 8 m. | | \$ 67.20 |
| | “ 560 “ 3 “ | \$ 8.40 | |
| | “ 420 “ 5 “ | 10.50 | |
| | “ 336 “ 6 “ | 10.08 | |
| | “ 280 “ 7 “ | 9.80 | |
| | <u>\$ 1596</u> | | <u>\$ 38.78</u> |
| | | | \$ 28.42 |

The Dr. is entitled to \$ 67.20 interest. By paying the parts as stated he gets \$ 38.78 ; leaving a balance of \$ 28.42. Hence, he ought to keep the balance of the \$ 1680, or \$ 84, till the interest on it amounts to \$ 28.42.

Interest of \$ 84 for 1 m. = \$ 0.42) \$ 28.42
67 $\frac{2}{3}$ m.

5 y. 7 m. 20 d. from the time the debt was contracted, Ans.

150. $\$ 600 \div 1.01 = \$ 594.059$
 $\$ 600 \div 1.02 = \$ 588.235$
\$ 1182.29, Ans.

151. Principal, \$ 1250
 Interest for 1 yr. 11 m. 1 d. @ 8%, 191.944+
\$ 1441.94, Ans.

152. $\begin{matrix} 13 : 15 \\ 248 : 510 \end{matrix} \left. \vphantom{\begin{matrix} 13 : 15 \\ 248 : 510 \end{matrix}} \right\} = \frac{9}{18} : 25\frac{2}{3}, \text{ Ans.}$

153. Interest of \$ 800 for 1 yr. @ 8 % = \$ 64.

\$ 150 \div \$ 64 = 2.3437 ; 2 yr. 4 m. 4 d., Ans.

154. \$ 1609.30 \div 1.045 = \$ 1540, Ans.

APPENDIX.

PRACTICAL EXAMPLES.

Page 281 - 331.

1. $1440 = 2 \times 2 \times 2 \times 2 \times 2 \times 3 \times 3 \times 5$, Ans.

2. $25740 = 2 \times 2 \times 3 \times 3 \times 5 \times 11 \times 13$, Ans.

3. $10917 = 3 \times 3 \times 1213$, Ans.

4. $29925 = 3 \times 3 \times 5 \times 5 \times 7 \times 19$, Ans.

5. See Ex. 22, Page 63.

6. It is.

7. $2501 = 41 \times 61$.

8. (See Notes, page 65.)

$$\begin{array}{l} 12 = 3 \times 4 \\ 16 = 4 \times 4 \end{array} \quad 4, \text{ Ans.}$$

9.
$$\begin{array}{r|l} 2741 & 2362 \\ 379 & 352 \\ 27 & 17 \\ 10 & 7 \\ 10 & 3 \\ & 3 \\ & 10 \end{array}$$

$$\begin{array}{r|l} 1181 & 1137 \\ 44 & 27 \\ 17 & 10 \\ 10 & 7 \\ 7 & 6 \\ 6 & 1 \end{array} \quad \text{Ans.}$$

10. $3402 = 2 \times 3 \times 3 \times 3 \times 3 \times 3 \times 7$

$5832 = 2 \times 2 \times 2 \times 3 \times 3 \times 3 \times 3 \times 3 \times 3$

$22680 = 2 \times 2 \times 2 \times 3 \times 3 \times 3 \times 3 \times 5 \times 7$

$2 \times 3 \times 3 \times 3 \times 3 \times 100 = 16200$, Ans.

11. (See Notes, page 68 ; also page 9 of this Key.)

$200 = 2 \times 2 \times 2 \times 5 \times 5$

$150 = 2 \times 3 \times 5 \times 5$

$200 \times 3 = 600$, Ans.

$$12. \quad 72 = 2 \times 2 \times 2 \times 3 \times 3$$

$$92 = 2 \times 2 \times 23$$

$$364 = 2 \times 2 \times 7 \times 13$$

$$364 \times 2 \times 3 \times 3 \times 23 = 150696, \text{ Ans.}$$

$$13. \quad 20 = 2 \times 2 \times 5$$

$$36 = 2 \times 2 \times 3 \times 3$$

$$36 \times 5 = 180, \text{ Ans.}$$

$$14. \quad 18 = 2 \times 3 \times 3$$

$$\text{G. C. D., } 3 \times 3 = 9$$

$$45 = 3 \times 3 \times 5 \quad \text{L. C. M., } 99 \times 2 \times 5 \times 7 = 6930$$

$$63 = 3 \times 3 \times 7$$

$$99 = 3 \times 3 \times 11$$

$$6930 \times 9 = 62370, \text{ Ans.}$$

$$15. \quad 3 = 3$$

$$10 = 2 \times 5$$

$$25 = 5 \times 5$$

$$\text{L. C. M., } 25 \times 3 \times 2 = 150$$

$$\$1.50, \text{ Ans.}$$

$$16. \quad 12 = 2 \times 2 \times 3$$

$$16 = 2 \times 2 \times 2 \times 2$$

$$20 = 2 \times 2 \times 5$$

$$\text{L. C. M., } 20 \times 3 \times 2 \times 2 = 240.$$

$$240; \text{ A } 20, \text{ B } 15, \text{ C } 12, \text{ Ans.}$$

$$17. \quad 30 = 2 \times 3 \times 5$$

$$20 = 2 \times 2 \times 5$$

$$35 = 5 \times 7$$

$$\text{L. C. M., } 35 \times 2 \times 3 \times 2 = 420.$$

They must work 420 minutes.

$$\left. \begin{array}{l} \text{A, } 14, \\ \text{B, } 21, \\ \text{C, } 12, \end{array} \right\} \text{ Ans.}$$

$$18. \quad \frac{23820}{39700} = \frac{3}{5}, \text{ Ans.}$$

$$19. \quad \frac{16200}{24840} = \frac{15}{23}, \text{ Ans.}$$

20.

$$945$$

$$840$$

$$\text{G. C. D., } \overline{105}$$

$$4620$$

$$3780$$

$$\overline{840}$$

$$840$$

$$\text{G. C. D., } 105, \left. \begin{array}{l} \\ \\ \end{array} \right\} \text{ Ans.}$$

$$21. \quad \frac{12}{48}, \frac{6}{48}, \frac{21}{48}, \frac{16}{48}, \text{ Ans.}$$

$$22. \quad \frac{18}{48}, \frac{21}{48}, \frac{22}{48}, \frac{5}{48}, \text{ Ans.}$$

$$23. \frac{240}{336}, \frac{294}{336}, \frac{80}{336}, \frac{63}{336}, \text{ Ans.} \quad 24. 42\frac{2}{3}, \text{ Ans.}$$

$$25. \frac{39}{68} + \frac{5}{6} + \frac{1}{6} = 1\frac{1}{2}, \text{ Ans.} \quad 26. 10\frac{1}{2}, \text{ Ans.}$$

$$27. \frac{3}{5} \times \frac{5}{6} \times \frac{2}{1} + \frac{4}{7} \times \frac{7}{12} \times \frac{9}{4} \times \frac{4}{9} = 1\frac{1}{2}, \text{ Ans.}$$

$$28. \frac{3}{4} \times \frac{7}{8} \times \frac{12}{39} \times \frac{16}{21} \times \frac{26}{3} = 1\frac{1}{2}, \text{ Ans.}$$

$$29. \frac{7}{8} \times \frac{16}{19} \times \frac{11}{4} \times \frac{38}{35} = 2\frac{1}{2}, \text{ Ans.}$$

$$30. \frac{10}{3} \times \frac{11}{5} \times \frac{43}{10} \times \frac{21}{4} = \frac{3311}{20} = 165\frac{11}{20}, \text{ Ans.}$$

$$31. \frac{1}{2} \times \frac{5}{7} \times \frac{59}{8} \times \frac{14}{177} = \frac{5}{24}, \text{ Ans.}$$

$$32. 1000 \div 33\frac{1}{3} = 30, \text{ Ans.} \quad 33. 64 \times 37\frac{1}{2} = 2400, \text{ Ans.}$$

$$34. 252 \div \frac{21}{16} = 192, \text{ Ans.}$$

$$35. \left. \begin{array}{l} 954 \div 4\frac{1}{2} = 212, \text{ smaller,} \\ 212 \times 3\frac{1}{2} = 742, \text{ greater,} \end{array} \right\} \text{ Ans.} \quad 36. \frac{1}{3} \times \frac{6}{5} = \frac{2}{5}, \text{ Ans.}$$

$$37. \frac{3}{4} \times \frac{2}{5} \times \frac{3}{1} \times \frac{1}{4} \times \frac{2}{21} \times \frac{7}{3} = \frac{1}{20}, \text{ Ans.}$$

$$38. \frac{1}{9} \times \frac{5}{4} \times \frac{9}{2} \times \frac{56}{5} \times \frac{3}{4} \times \frac{2}{7} = 1\frac{1}{2}$$

$$\frac{2\frac{1}{2} + 4\frac{1}{3}}{5\frac{1}{2} + 1\frac{1}{2}} = \frac{6\frac{7}{6}}{6\frac{7}{6}} = 1; \quad \frac{3}{2} - 1 = \frac{1}{2}, \text{ Ans.}$$

$$39. \{(50 + 1) \div 3\frac{2}{3}\} \div \frac{6}{7} = 51 \times \frac{5}{17} \times \frac{7}{6} = 17\frac{1}{2}, \text{ Ans.}$$

$$40. \frac{3 + 5}{7 + 5} = \frac{8}{12} = \frac{2}{3}; \quad \frac{2}{3} - \frac{3}{7} = \frac{5}{21}. \quad \text{Increased } \frac{5}{21}, \text{ Ans.}$$

$$41. \frac{82}{5} \times \frac{7}{2} \times \frac{7}{1} \times \frac{1}{4} \times \frac{2}{1} \times \frac{5}{3} = \frac{392}{3} = 130\frac{2}{3}, \text{ Ans.}$$

$$42. \$17.50 \times \frac{3.50}{5} \times \frac{2}{4} = \$441. \text{ Ans.}$$

$$43. \$\frac{5}{8} \times \frac{10}{9} \times \frac{2}{48} = \$33\frac{1}{3}, \text{ Ans.}$$

$$44. \frac{2}{3} \times \frac{3}{4} \times \frac{2}{1} \times \frac{2}{25} \times \frac{4}{1} = \frac{8}{25}, \text{ Ans.}$$

$$45. \frac{72}{5} \times \frac{7}{48} \times \frac{10}{9} \times \frac{11}{84} = \frac{55}{36} = 1\frac{19}{36}, \text{ Ans.}$$

$$46. \frac{45}{2} \times \frac{6}{1} \times \frac{4}{25} = \frac{108}{5} = 21\frac{3}{5}, \text{ Ans.}$$

$$47. \quad \frac{6}{13} \times \frac{1}{5} = \frac{6}{65}; \quad \frac{6}{65} \text{ of } 325 \text{ m.} = 30 \text{ m., Ans.}$$

$$48. \quad \frac{1}{10} + \frac{1}{12} + \frac{1}{15} = \frac{1}{4}, \text{ the part all can do in one day; hence, they can do it all in 4 days, Ans.}$$

$$49. \quad \frac{7}{12} \times \frac{3}{4} = \frac{7}{16}$$

$$\$1400 \times \frac{16}{7} = \$3200, \text{ Ans.}$$

$$50. \quad \$\frac{11}{7} - \$\frac{7}{5} = \$\frac{6}{35}, \text{ gain a yard.}$$

$$\left\{ \left(200 \div \frac{6}{35} \right) \div 129 \frac{17}{27} \right\} \text{ bales} = \frac{200}{1} \times \frac{35}{6} \times \frac{27}{3500} \text{ bales} \\ = 9 \text{ bales, Ans.}$$

$$51. \quad \$9.50 \div \frac{19}{33} = \$16.50, \text{ Ans.}$$

$$52. \quad \$86 \times \frac{25}{\frac{18}{9}} \times \frac{4}{8} = \$955.55\frac{5}{9}, \text{ Ans.}$$

53. $\frac{1}{80} + \frac{1}{80} = \frac{1}{40}$, part they can do together in one day.
In 5 days they can do $\frac{1}{40} \times 5 = \frac{1}{8}$; hence they must work $\frac{8}{11}$,
or $8\frac{8}{11}$, hours each day, Ans.

$$54. \quad \frac{1}{4} - \frac{1}{12} = \frac{1}{6}, \text{ B can do in one day.}$$

$$\frac{1}{8} - \frac{1}{24} = \frac{1}{24}, \text{ C " "}$$

$$\frac{1}{12} + \frac{1}{24} = \frac{1}{8}, \text{ A and C together can do in one day.}$$

Hence, it will take A and C $\frac{8}{11}$, or $4\frac{8}{11}$, days, Ans.

$$55. \quad \text{A can do } \frac{1}{4} \text{ in one day; B, } \frac{1}{8}; \text{ C, } \frac{1}{24}; \text{ D, } \frac{1}{12}.$$

$$\frac{1}{4} + \frac{1}{8} + \frac{1}{24} = \frac{1}{3}, \text{ what all can do in one day.}$$

Hence, it will take them $\frac{3}{5}$, or $5\frac{3}{5}$, days, Ans.

$$56. \quad 0.05$$

$$0.083\frac{1}{3}$$

$$0.004\frac{1}{2}$$

$$0.0001125$$

$$5.5$$

$$\underline{5.6376125}, \text{ Ans.}$$

$$57. \quad \frac{3}{8}; 1\frac{3}{8}; \frac{3}{8}; 4\frac{1}{8}; 3\frac{1}{8}, \text{ Ans.}$$

58. $1.44 \div 12 = 0.12$
 $144 \div 12 = 12$
 $0.0144 \div 1.2 = 0.012$
 $14400 \div 0.012 = 1200000$
 $14.4 \div 0.0012 = 12000$
 $\underline{1212012.132}, \text{ Ans.}$
59. 74860, Ans. 62. $3333\frac{1}{3}$, Ans.
60. 0.00001335+, Ans. 63. 0.05004, Ans.
61. 0.0003, Ans. 64. 0.0000002785+, Ans.
65. 0.000096674166+, Ans.
66. $\frac{5}{2} \times \frac{3}{5} \times \frac{8}{5} \times \frac{5}{10} = \frac{3}{4} = 0.75$, Ans.
67. $(1240 + 12.40 + 1240) \div 0.00\frac{1}{2} = 747720$, Ans.
68. $3.222 + 0.03222 + 0.3222 + 322.2 + 32.22$
 $= 357.99642$, Ans.
69. $\frac{25}{40} \div (8.03 \times 0.06) = 0.625 \div 0.4818 = 1.29721+$, Ans.
70. $\begin{array}{r} 449.300003 \\ 246.003 \\ \hline 203.297003 \\ 0.005 \end{array}$ 71. $\left. \begin{array}{l} 2000000, \\ 0.000000002, \end{array} \right\} \text{ Ans.}$
- 0.0004) $\begin{array}{r} 1.016485015 \\ \hline 2541.2125375, \end{array}$ Ans. 72. $\left. \begin{array}{l} 0.0875, \\ \frac{1}{10}, \end{array} \right\} \text{ Ans.}$
73. $\left. \begin{array}{l} 200, \\ 1.00000021, \end{array} \right\} \text{ Ans.}$ 74. $\left. \begin{array}{l} 0.0375, \\ \frac{1}{20}, \end{array} \right\} \text{ Ans.}$
75. $\left. \begin{array}{l} 0.340017, \\ 10900000, \end{array} \right\} \text{ Ans.}$
76. 178.47, Ans. 78. Due, \$167.45, Ans.
77. \$247, Ans. 79. \$0.35, Ans.

80. 90, Ans.
81. \$ 1059.20, Ans.
82. 28, Ans.
83. \$ 1155, Ans.
84. \$ 63, Ans.
85. \$ 1.12, Ans.
86. \$ 825.416+ (interest excluded), Ans.
87. 10, Ans.
88. \$ 270.543, Ans.
89. \$ 7.64—, Ans.
90. \$ 133, Ans.
91. Due W. J. H., \$ 3187.85, Ans.
92. N. F. C., Dr., \$ 36.425, Ans.
93. Due L. M., \$ 1.505, Ans.
94. C. P. T., Dr., \$ 465, Ans.
95. P. D., Dr., \$ 10.94—, Ans.
96. Due D. A. & Co., \$ 80.50, Ans.
97. 11 m. $43\frac{1}{2}$ sec., Ans.
98. 4560, Ans.
99. \$ 582.75, Ans.
100. 95, Ans.
101. 99.06 m, Ans.
102. 12.3615, Ans.
103. \$ 90, Ans.
104. 3.825, Ans.
105. Copper, 482.84 g, } Ans.
Zinc, 362.13 g, }
106. $\left. \begin{array}{l} 1.15 \text{ cu m,} \\ 1150 \text{ l,} \\ 8280 \text{ K,} \end{array} \right\} \text{Ans.}$
107. 60, Ans.
108. 13.696— m, Ans.
109. 15625, Ans.
110. $\left. \begin{array}{l} 535.5 \text{ Dl,} \\ 5.355 \text{ T,} \end{array} \right\} \text{Ans.}$
111. 306.25, Ans.
112. 15, Ans.
113. $\left. \begin{array}{l} 11550 \text{ l,} \\ 11550 \text{ K,} \end{array} \right\} \text{Ans.}$
114. 1 qt. $0\frac{3}{4}$ pt., Ans.
115.
$$\begin{array}{r} 12) 6 \\ 3) \underline{2.5} \\ 5.5) \underline{5.833+} \\ \quad 1.06+ \text{ rd., Ans.} \end{array}$$
116. 2 qt. 1 pt. $3\frac{1}{2}$ gi., Ans.
117. $3\frac{1}{2}$ ft., Ans.
118. 254 rd. 6 ft. 7.2 in., Ans.

$$119. \frac{3 \text{ a. } 16 \text{ sq. rd.}}{16 \text{ a. } 72 \text{ sq. rd.}} = \frac{3.1 \text{ a.}}{16.45 \text{ a.}} = \frac{62}{329}, \text{ Ans.}$$

$$120. 3987 \text{ qt.} \div 95 \text{ qt.} = 41+. \quad 42, \text{ Ans.}$$

$$121. \$34.56, \text{ Ans.} \quad 122. \$48.52-, \text{ Ans.}$$

$$123. \frac{4 \times 4 \times 6 \times 1728}{268\frac{2}{3} \times 8} = \frac{\overset{108}{\cancel{4}} \times \overset{216}{\cancel{4}} \times \overset{5}{\cancel{6}} \times \overset{1728}{\cancel{1728}}}{\underset{7}{\cancel{1344}} \times \overset{8}{\cancel{8}}} = 77\frac{1}{2}, \text{ Ans.}$$

$$124. (8 \times 4 + 8 \times 3 + 4 \times 3) \times 2 = 136, \text{ Ans.}$$

$$125. 15 \text{ a. } 106 \text{ sq. rd. } 47\frac{2}{3} \text{ sq. ft.}, \text{ Ans.}$$

$$126. \frac{\overset{2}{6} \times \overset{16}{8} \times \overset{12}{12} \times \overset{144}{144}}{\underset{9}{27} \times \underset{36}{36}} = 32, \text{ Ans.}$$

$$127. \$1.68, \text{ Ans.} \quad 133. \$59.259+, \text{ Ans.}$$

$$128. 1728, \text{ Ans.} \quad 134. \left. \begin{array}{l} 160, \\ \$36.66\frac{2}{3}, \end{array} \right\} \text{ Ans.}$$

$$129. 2d; 25\frac{1}{2}, \text{ Ans.} \quad 135. 48 \text{ cu. ft. } 1056 \text{ cu. in.}, \text{ Ans.}$$

$$130. \$610, \text{ Ans.} \quad 136. 5 \text{ ft.}, \text{ Ans.}$$

$$131. \$22.362, \text{ Ans.} \quad 137. \frac{1}{255} \frac{1}{178} \text{ in.}, \text{ Ans.}$$

$$132. \$155.875, \text{ Ans.} \quad 138. 651702857\frac{1}{2}, \text{ Ans.}$$

$$139. 5 \text{ a. } 44 \text{ sq. rd. } 10 \text{ sq. ft. } 72 \text{ sq. in.}, \text{ Ans.}$$

$$140. \$615.77+, \text{ Ans.} \quad 144. 101\frac{1}{2}\frac{1}{2}, \text{ Ans.}$$

$$141. \$9.93+, \text{ Ans.} \quad 145. \$3510, \text{ Ans.}$$

$$142. 22\frac{3}{4}, \text{ Ans.} \quad 146. 70\frac{3}{4}, \text{ Ans.}$$

$$143. 7 \text{ m. } 56 \text{ rd. } 11 \text{ ft. } 9 \text{ in.}, \text{ Ans.} \quad 147. \left. \begin{array}{l} \text{A, } 60\frac{3}{4}, \\ \text{B, } 48\frac{1}{2}, \end{array} \right\} \text{ Ans.}$$

148. It will take 8 breadths, each 24 ft. 3 in. long.

\$ 56.58+, Ans.

149. It will take 11 breadths, each 16 ft. 9 in. long.

\$ 53.74—, Ans.

150. 2 h. 30 m. $41\frac{1}{2}$ sec., Ans. 151. $36^{\circ} 47'$, Ans.

(152.)

| | | | | | |
|-----|-------|----|-----------------------------|-----|---------------------------|
| | 90° | 7' | | W., | longitude of New Orleans. |
| | 77° | 2' | 48" | W., | " Washington. |
| 15) | 13° | 4' | 12" | | difference in longitude. |
| | <hr/> | | | | |
| | | | 52 m. $16\frac{2}{3}$ sec., | " | time, Ans. |

(153.)

| | | | | | |
|-----|-------|------|----------------------|-----|--------------------------|
| | 87° | 35' | | W., | longitude of Chicago. |
| | 71° | 4' | 9" | W., | " Boston. |
| 15) | 16° | 30' | 51" | | difference in longitude. |
| | <hr/> | | | | |
| | 1 h. | 6 m. | $3\frac{2}{3}$ sec., | " | time, Ans. |

(154.)

| | | | | | |
|-----|-------|-------|-----------------------|-----|------------------------------|
| | 28° | 59' | | E., | longitude of Constantinople. |
| | 71° | 4' | 9" | W., | " Boston. |
| 15) | 100° | 3' | 9" | | difference in longitude. |
| | <hr/> | | | | |
| | 6 h. | 40 m. | $12\frac{2}{3}$ sec., | " | time, Ans. |

(155.)

| | | | | | |
|-----|-------|-------|-----------------------|-----|--------------------------|
| | 103° | 45' | | W., | longitude of Mexico. |
| | 74° | 0' | 3" | W., | " New York. |
| 15) | 29° | 44' | 57" | | difference in longitude. |
| | <hr/> | | | | |
| | 1 h. | 58 m. | $59\frac{2}{3}$ sec., | " | time, Ans. |

(156.)

$$\begin{array}{rcl}
 77^{\circ} & 2' & 48'' \text{ W., longitude of Washington.} \\
 5^{\circ} & 24' & \text{W., " St. Helena.} \\
 15) \hline
 71^{\circ} & 38' & 48'', \text{ difference in longitude.} \\
 4 \text{ h.} & 46 \text{ m.} & 35\frac{1}{2} \text{ sec., " time, Ans.}
 \end{array}$$

$$157. \left(\frac{422.433}{53.47 \times 15} \right) \text{ h.} = 31 \text{ m. } 36\frac{489}{347} \text{ sec., Ans.}$$

(158.)

$$\begin{array}{rcl}
 18^{\circ} & 24' & \text{E., longitude of Cape of Good Hope.} \\
 67^{\circ} & 21' & \text{W., " Cape Horn.} \\
 15) \hline
 85^{\circ} & 45' & \text{, difference in longitude.} \\
 5 \text{ h.} & 43 \text{ m.,} & \text{" time, Ans.}
 \end{array}$$

$$159. 87^{\circ} 38' \text{ W., Ans.}$$

(160.)

$$\begin{array}{rcl}
 122^{\circ} & 26' & 15'' \text{ W., longitude of San Francisco.} \\
 13^{\circ} & 23' & 53'' \text{ E., " Berlin.} \\
 15) \hline
 135^{\circ} & 50' & 8'', \text{ difference in longitude.} \\
 9 \text{ h.} & 3 \text{ m.} & 20\frac{8}{15} \text{ sec., " time, Ans.}
 \end{array}$$

$$\begin{array}{rcl}
 161. \text{ Longitude of Philadelphia,} & 75^{\circ} & 10' \text{ W.} \\
 \text{Difference in longitude,} & 47^{\circ} & 42' 30'' \\
 & 27^{\circ} & 27' 30'' \text{ W., Ans.}
 \end{array}$$

$$162. \left. \begin{array}{l} 1, \\ 14.4, \end{array} \right\} \text{ Ans.}$$

$$165. \$ 28000, \text{ Ans.}$$

$$163. \left. \begin{array}{l} 625, \\ 125, \end{array} \right\} \text{ Ans.}$$

$$166. 24\%, \text{ Ans.}$$

$$167. 750, \text{ Ans.}$$

$$164. \left. \begin{array}{l} 120, \\ 83\frac{1}{3}, \end{array} \right\} \text{ Ans.}$$

$$168. \frac{3}{4} \text{ bush., Ans.}$$

$$169. 66\frac{2}{3}, \text{ Ans.}$$

$$170. 68, \text{ and } 4 \text{ cents in currency left, Ans.}$$

$$171. \$ 0.35\frac{1}{4}, \text{ Ans.}$$

$$172. 133\frac{1}{3}, \text{ Ans.}$$

173. Collector gets $2\frac{1}{2}\%$, town, $97\frac{1}{2}\%$; that is, town gets 39 times as much as the collector. $\$739 \times 39 = \28821 , Ans.

$$\begin{array}{r} 174. \quad \$4.07\overline{1737} \\ \quad \quad 28\overline{17373}, \end{array} \left. \vphantom{\begin{array}{r} 174. \quad \$4.07\overline{1737} \\ \quad \quad 28\overline{17373}, \end{array}} \right\} \text{Ans.}$$

175. If $\frac{3}{4}$ is sold for $\frac{1}{2}$ of its cost, at the same rate the whole would bring $\frac{3}{4}$ of its cost. Hence, loss $33\frac{1}{3}\%$, Ans.

$$176. \$5882.35+, \text{ Ans.} \quad 181. 100, \text{ Ans.}$$

$$177. \$102.13-, \text{ Ans.} \quad 182. 6, \text{ Ans.}$$

$$178. \$3072, \text{ Ans.} \quad 183. \text{ Loss, } \$252, \text{ Ans.}$$

$$179. \text{ Loss, } \$5, \text{ Ans.} \quad 184. 12, \text{ Ans.}$$

$$180. 125, \text{ Ans.} \quad 185. \$5000, \text{ Ans.}$$

$$186. \$10 \times 1.20 \div 0.96 = \$12.50, \text{ Ans.}$$

$$187. \$0.875 \div 0.75 = \$1.16\overline{6}, \text{ Ans.}$$

$$188. \$1250 \times 1.20 \div (2000 \times 0.85) = \$0.88\overline{47}, \text{ Ans.}$$

$$189. \$300, \text{ Ans.}$$

190. As often as \$1 was paid for the horse, \$0.625 was paid for the buggy, and $(\$0.625 \times 0.30) = \0.1875 for the harness; or, as often as \$16 was paid for the horse, \$10 was paid for the buggy, and \$3 for the harness. Hence,

$$\left. \begin{array}{l} \text{Horse, } \$500 \times \frac{1}{8} = \$275.86\overline{25}, \\ \text{Buggy, } \$500 \times \frac{1}{8} = \$172.41\overline{13}, \\ \text{Harness, } \$500 \times \frac{3}{8} = \$187.50, \end{array} \right\} \text{Ans.}$$

$$191. \$0.80 \times \frac{8}{5} \div \frac{4}{5} = \$1.08, \text{ Ans.}$$

$$192. \$200 \div 11.5 = \$173\overline{33}, \text{ cost.}$$

$$\$220 - \$173\overline{33} = \$46\overline{66}, \text{ gain.}$$

$$\$46\overline{66} \div \$173\overline{33} = 0.265; \quad 26\frac{1}{2}\%, \text{ Ans.}$$

$$193. \$874 \times 0.95 \div 1.15 = \$722, \text{ Ans.}$$

$$194. \$3597 \div 0.9675 = \$3717.83-, \text{ Ans.}$$

$$195. (\$125.25 \div 0.0125) \times \frac{2}{5} = \$16032, \text{ Ans.}$$

196. $\$12000 \times \frac{3}{4} \times 0.006 = \48 , Ans.
197. $\$43500 \div 0.98 = \$44387.755+$, Ans.
198. $\$25000 \times \frac{3}{4} \times 0.00625 + \$1.25 = \$118.44-$, Ans.
199. $\$12750 \times 0.0075 + \$1 = \$96.625$, Ans.
200. $\$3240 \times \frac{3}{4} \times 0.0075 = \16.20 , Ans.
201. $\$6000 \times \frac{3}{4} \times 0.005 + \$1800 \times \frac{3}{4} \times 0.006 + \$1 =$
 $\$32.14$, Ans.
202. Commission, $\$52 \times 1500 \times 0.02 = \1560 , }
 Proceeds, $\$52 \times 1500 - \$1560 = \$76440$, } Ans.
203. Each barrel, including commission, costs $\$7.725$.
 $\$4680 \div \$7.725 = 605$, and $\$6.375$ rem., Ans.
204. $\$1150 \div 0.0025 = \46000 , Ans.
205. $\$115.25 \times 150 = \17287.50 , Ans.
206. $\$0.70 \times 5750 = \4025 , received for potatoes.
 $\$4025 \times 0.015 = \60.375 , commission.
 $\$4025 - \$60.375 = \$3964.625$, net proceeds.
 $(3964.635 \div 42.42)$ t. = 93 t. 922 $\frac{1}{3}$ $\frac{1}{3}$ lb., Ans.
207. $\$60.375$, Ans.
208. $\$5640 - (\$5422.50 + \$76.50) = \141 , commission.
 $\$141 \div \$5640 = 0.025$; 2 $\frac{1}{2}$ %, Ans.
209. $\$75000 \times 0.02 = \1500 , commission for selling.
 $(\$75000 - \$1500) \div 1.01 = \$72772.28-$, Ans.
210. $\$259.20 \div 0.96 = \270 , collected.
 $\$270 \div \$375 = 0.72$; 72 %, Ans.
211. Invested, $\$1700 \div 1.035 = \$1642.51+$, }
 Commission, $\$1700 - \$1642.51+ = \$57.49-$, } Ans.
212. Invest, $\$5640 \div 1.04 = \$5423.08-$, }
 Commission, $\$5640 - \$5423.08- = \$216.92+$, } Ans.

213. Each barrel, including commission, costs \$6.9525.

$$\$5000 - \$6.9525 \times 700 = \$133.25, \text{ Ans.}$$

214. $\$0.56 \times 10000 = \5600 , received for wheat.

$$\$5600 \times 0.00\frac{1}{4} = \$14, \text{ commission.}$$

$$\$5600 - \$14 = \$5586, \text{ to invest.}$$

Each pound of sugar, including commission, costs \$0.0505.

$$\$5586 \div \$0.0505 = 110613\frac{87}{100}, \text{ Ans.}$$

215. $\$3.50 \times 12 \times 500 = \21000 , received for boots.

$$\$21000 \times 0.005 = \$105, \text{ commission.}$$

$$\$21000 - \$105 = \$20895, \text{ to invest.}$$

Each pound of cotton, including commission, costs \$0.153.

$$\$20895 \div \$0.153 = 136568.6+, \text{ Ans.}$$

216. $\$18775 \times 0.96 \div 1.10 = \$16385.45+, \text{ Ans.}$

217. $\$237.50 \div 0.95 = \$250, \text{ Ans.}$

218. Debtor pays $\$160 \times 0.75 = \120 ,
 Agent retains $\$120 \times 0.05 = \6 ,
 Creditor receives $\$120 - \$6 = \$114$, } Ans.

219. Debtor pays $\$256.50 \div 0.95 = \270 ,
 Agent retains $\$270 - \$256.50 = \$13.50$,
 Bill, $\$270 \div 0.45 = \600 , } Ans.

220. Debtor pays $\$15.75 \div 0.05 = \315 ,
 Creditor receives $\$315 - \$15.75 = \$299.25$,
 Amount of the bill, $\$315 \div 0.65 = \$484.62-$, } Ans.

221. $\$299.25 \div (\$315 \div 0.65) = 0.61\frac{3}{4}$

$$\$15.75 \div \$299.25 = 0.05\frac{315}{1187}$$

$$\$15.75 \div (\$315 \div 0.65) = 0.03\frac{1}{4}$$

Creditor receives $61\frac{3}{4}\%$,
 Agent of this sum (about) $5\frac{1}{4}\%$,
 Agent receives of whole $3\frac{1}{4}\%$, } Ans.

222. Due, $\$517.49+, \text{ Ans.}$

223. $5 + 3\frac{5}{10} = 8.5$; $8\frac{1}{2}\%$, Ans.

224. $12\% - (3\frac{1}{2}\% + \frac{1}{2}\%) = 8\frac{1}{2}\%$, gain; or, \$2.0625 on a share. \$206.25, Ans.

225. $(\$92\frac{3}{4} - \$82\frac{3}{4}) \times 50 = \500 , Ans.

226. $\$1280 \div 106000 = 12\frac{4}{5}$ mills, tax on \$1, Ans.

227.
$$\frac{\$63360}{3 \times 5280 \times 2} = \$2, \text{ assessment a foot on either side of } \frac{\text{the street.}}{\text{the street.}}$$

A, $\$2 \times 24 = \48 ,
 B, $\$2 \times 39 = \78 ,
 C, $\$2 \times 51 = \102 , } Ans.

(228.)

$\$1.50 \times 800 = \1200 , sum assessed on the polls.

$\$64200 - \$1200 = \$63000$, sum to be assessed on the property.

$\$2400000 + \$1800000 = \$4200000$, amount of taxable property.

$\$63000 \div 4200000 = 15$ mills, tax on \$1, or the rate.

$\$12000 \times 0.015 = \180 , tax on A's property.

$\$180 + \$1.50 = \$181.50$, A's entire tax, Ans.

(229.)

$\$0.75 \times 500 = \375 , sum assessed on the polls.

$\$5000 - \$375 = \$4625$, sum to be assessed on the property.

$\$4625 \div 370000 = 12\frac{1}{2}$ mills, tax on \$1, or the rate.

$\$7500 \times 0.0125 + \$0.75 \times 2 = \$95.25$, entire tax, Ans.

(230.)

$\$5500 + \$3700 = \$9200$, A's taxable property.

$\$9200 \times 0.016 + \$2 = \$149.20$, A's entire tax, Ans.

| | | | |
|-------------------------|---|----------------------|----------------|
| 231. Interest for 12 m. | @ | 6 % . . | \$28.80 |
| " 1 d. | " | " . . | 0.08 |
| " 11 m. 29 d. | " | " . . | \$28.72 |
| " " | " | 1 % . . | 4.787— |
| " " | " | $\frac{3}{10}$ % . . | 1.436— |
| " " | " | 7.3 % . . | \$34.94—, Ans. |

If we count the time as 363 days, and reckon 2 cents a day for every \$100 (Art. 347, Note 2), we obtain \$34.848, as the exact interest.

| | | |
|------------------------|-------------------|------------------------|
| 232. Interest for 8 m. | | \$ 30.2736 |
| " | 12 d. | 1.51368 |
| " | 5 " | 0.63070 |
| " | <u>8 m. 17 d.</u> | <u>\$ 32.42—, Ans.</u> |

| | | |
|-------------------------|-------------------------|------------------------|
| 233. Interest for 20 m. | | \$ 125 |
| " | 6 " | 37.50 |
| " | 1 " | 6.25 |
| " | 12 d. | 2.50 |
| " | <u>2 yr. 3 m. 12 d.</u> | <u>\$ 171.25, Ans.</u> |

| | | | |
|--------------------------|---------------------|-------------------|-------------------------|
| 234. Interest for 12 yr. | @ 6 % | . . . | \$ 32.40 |
| " | 27 d. | " " | 0.2025 |
| " | <u>12 yr. 27 d.</u> | " " | <u>\$ 32.6025</u> |
| " | " | " $\frac{3}{4}$ % | 4.0753 |
| " | " | $6\frac{3}{4}$ % | <u>\$ 36.6778, Ans.</u> |

| | | | |
|------------------------|-------------------|-------------------|------------------------|
| 235. Interest for 4 m. | @ 6 % | . . . | \$ 6.85 |
| " | 1 d. | " " | 0.057+ |
| " | <u>3 m. 29 d.</u> | " " | <u>\$ 6.793—</u> |
| " | " | " 1 % | 1.132+ |
| " | " | " $\frac{7}{8}$ % | <u>\$ 7.925+, Ans.</u> |

| | | | |
|------------------------|-------------------|--|-------------------------|
| 236. Interest for 6 m. | @ 6 % | . . . | \$ 29.4525 |
| " | 6 d. | " " | 0.98175 |
| " | 5 " | " " | 0.818125 |
| " | <u>6 m. 11 d.</u> | " " | <u>\$ 31.252375</u> |
| " | " | " $1\frac{1}{2}$ % ($\frac{1}{4}$ of 6 %) | 7.813094 |
| " | " | " $7\frac{1}{2}$ % | <u>\$ 39.065+, Ans.</u> |

| | | |
|------------------------|-------------------|-----------------------|
| 237. Interest for 4 m. | | \$ 10.336 |
| " | 15 d. | 1.292 |
| " | 2 " | 0.1723— |
| " | <u>4 m. 17 d.</u> | <u>\$ 11.80+, Ans</u> |

| | | | |
|------|--|------------------------|------------------|
| 238. | Interest for 14 m. | @ 6 % . . | \$ 7.5551 |
| | " 1 " | " " . . | 0.53965 |
| | " 18 d. | " " . . | 0.32379 |
| | " 1 " | " " . . | 0.01799— |
| | 1 yr. 3 m. 19 d. | " " . . | \$ 8.43653 |
| | " " | " 2 % . . | 2.812 |
| | " " | " 8 % . . | \$ 11.248+, Ans. |
| 239. | Interest for 40 m. | | \$ 357.20 |
| | " 27 d. | | 8.037 |
| | 3 yr. 3 m. 3 d. | | \$ 349.163, Ans. |
| 240. | Interest for 60 m. | @ 6 % . . | \$ 226.50 |
| | " 3 d. | " " . . | 0.3775 |
| | 4 yr. 11 m. 27 d. | " " . . | \$ 226.1225 |
| | " " | " 2 % . . | 75.3742 |
| | " " | " 8 % . . | \$ 301.50—, Ans. |
| 241. | Principal | | \$ 250 |
| | Interest for 4 m. | | 5 |
| | " 24 d. | | 1 |
| | " 1 " | | 0.0417— |
| | Amount for 4 m. 25 d. | | \$ 256.04+, Ans. |
| 242. | Interest for 6 m. | @ 6 % . . | \$ 23.5725 |
| | " 18 d. | " " . . | 2.35725 |
| | 6 m. 18 d. | " " . . | \$ 25.92975 |
| | " " | " 2 % . . | 8.64325 |
| | Principal | | 785.75 |
| | Amount for 6 m. 18 d. @ 8 % . . | | \$ 820.323, Ans. |
| 243. | Interest for 3 m. | @ 6 % . . | \$ 3.705 |
| | " 24 d. | " " . . | 0.988 |
| | " 1 " | " " . . | 0.041+ |
| | 3 m. 25 d. | " " . . | \$ 4.734 |
| | " " | " $\frac{1}{2}$ % . . | 0.3945 |
| | " " | " $5\frac{1}{2}$ % . . | \$ 4.34— |
| | Principal | | 247 |
| | Amount for 3 m. 25 d. @ $5\frac{1}{2}$ % . . | | \$ 251.34—, Ans. |

| | | | | |
|------|---|-------|-----|-------------------------|
| 244. | Interest for 16 m. | @ 6 % | . . | \$ 30.0144 |
| | " 8 d. | " " | . . | 0.50024 |
| | " 1 yr. 4 m. 8 d. | " " | . . | <u>\$ 30.51464</u> |
| | " " " 1 % | . . | | 5.08577 |
| | Principal | | | 375.18 |
| | Amount for 1 yr. 4 m. 8 d. @ $7\frac{1}{2}\%$ | . . | | <u>\$ 410.78+, Ans.</u> |

| | | | | |
|------|--|-------|-----|-------------------------|
| 245. | Interest for 20 m. | @ 6 % | . . | \$ 41.525 |
| | " 12 d. | " " | . . | 0.8305 |
| | " 5 " | " " | . . | 0.346 |
| | " 1 yr. 8 m. 17 d. | " " | . . | <u>\$ 42.7015</u> |
| | " " " $\frac{1}{2}\%$ | . . | | 3.5584 |
| | Principal | | | 415.25 |
| | Amount for 1 yr. 8 m. 17 d. @ $6\frac{1}{2}\%$ | . . | | <u>\$ 461.51—, Ans.</u> |

| | | | | |
|------|-----------------------------------|-------|-----|----------------------|
| 246. | Interest for 18 m. | @ 6 % | . . | \$ 108.0981 |
| | " 1 d. | " " | . . | 0.2002— |
| | " 1 yr. 5 m. 29 d. | " " | . . | <u>\$ 107.8979</u> |
| | " " " 1 % | . . | | 17.9829 |
| | " " " 5% | . . | | <u>\$ 89.91</u> |
| | Principal | | | 1201.09 |
| | Amount for 1 yr. 5 m. 29 d. @ 5 % | . . | | <u>\$ 1291, Ans.</u> |

| | | | | |
|------|-----------------------------------|--|--|--------------------------|
| 247. | Principal | | | \$ 2753 |
| | Interest for 20 m. | | | 275.30 |
| | " 1 " | | | 13.765 |
| | " 15 d. | | | 6.8825 |
| | " 1 " | | | 0.4588 |
| | Amount for 1 yr. 9 m. 16 d. . . . | | | <u>\$ 3049.41—, Ans.</u> |

| | | | | |
|------|----------------------------------|--|--|-------------------------|
| 248. | Principal | | | \$ 879.84 |
| | Interest for 20 m. | | | 87.984 |
| | " 6 " | | | 26.395 |
| | " 2 d. | | | 0.293 |
| | Amount for 2 yr. 2 m. 2 d. . . . | | | <u>\$ 994.51+, Ans.</u> |

| | | | | |
|------|----------------------------|-------------------|-----------|-------------------|
| 249. | Interest for 20 m. | @ 6 % | . . . | \$ 74.315 |
| | " 8 " | " " | . . . | 29.726 |
| | " 8 d. | " " | . . . | 0.9909— |
| | 2 yr. 4 m. 8 d. | " " | . . . | \$ 105.0319 |
| | " " | " 1½ % (½ of 6 %) | . . . | 26.258— |
| | Principal | | | 743.15 |
| | Amount for 2 y. 4 m. 8 d. | @ 7½ % | . . . | \$ 874.44—, Ans. |
| 250. | Interest for 40 m. | @ 6 % | . . . | \$ 301.666 |
| | " 27 d. | " " | . . . | 6.787 |
| | " 3 yr. 3 m. 3 d. | " " | . . . | \$ 294.879 |
| | " " | " 1 % | . . . | 49.1465 |
| | Principal | | | 1508.33 |
| | Amount for 3 yr. 3 m. 3 d. | @ 7 % | . . . | \$ 1852.36—, Ans. |
| 251. | Interest for 3 m. | | | \$ 3.5775 |
| | " 12 d. | | | 0.477 |
| | " 3 m. 12 d. | | | \$ 4.05+, Ans. |
| 252. | Interest for 5 m. | @ 6 % | . . . | \$ 130.4125 |
| | " 18 d. | " " | . . . | 15.6495 |
| | " 5 " | " " | . . . | 4.34708 |
| | 5 m. 23 d. | " " | . . . | \$ 150.409 |
| | " " | " 1½ % (½ of 6 %) | . . . | 37.602 |
| | " " | " 7½ % | . . . | \$ 188.01+, Ans. |
| 253. | Interest for 6 m. | @ 6 % | . . . | \$ 21.60 |
| | " 18 d. | " " | . . . | 2.16 |
| | " 5 " | " " | . . . | 0.60 |
| | 6 m. 23 d. | " " | . . . | \$ 24.36 |
| | " " | " 1 % | . . . | 4.06 |
| | " " | " ¾ % | . . . | 1.218 |
| | " " | " 7.3 % | . . . | \$ 29.638, Ans. |

Exact interest for 207 days (Art. 347, Note 2), \$ 0.0002 × 207 × 720 = \$ 29.808, Ans.

| | | | |
|------|--------------------|------------|------------------------------|
| 254. | Interest for 10 m. | | \$ 296.875 |
| | " | 5 d. | 4.9479 |
| | " | 9 m. 25 d. | <u>\$ 291.927, Ans.</u> |
| 255. | Interest for 4 m. | @ 6 % | \$ 49.735 |
| | " | 4 d. | 1.65783 |
| | " | 3 m. 26 d. | <u>\$ 48.07717</u> |
| | " | " | 1 $\frac{1}{2}$ % (1 or 6 %) |
| | " | " | 12.01929 |
| | " | " | <u>\$ 60.096+, Ans.</u> |
| 256. | Interest for 4 m. | | \$ 78.90 |
| | " | 3 d. | 1.9725 |
| | " | 4 m. 3 d. | <u>\$ 80.87+, Ans.</u> |
| 257. | Interest for 6 m. | @ 6 % | \$ 54.8229 |
| | " | 24 d. | 7.30972 |
| | " | 4 " | 1.21829 |
| | " | 6 m. 28 d. | <u>\$ 63.3509</u> |
| | " | " | 1 % |
| | " | " | 10.5585 |
| | " | " | 5 % |
| | " | " | <u>\$ 52.79+, Ans.</u> |
| 258. | Interest for 4 m. | @ 6 % | \$ 49.4636 |
| | " | 12 d. | 4.94636 |
| | " | 4 m. 12 d. | <u>\$ 54.40996</u> |
| | " | " | 1 % |
| | " | " | 4.53416 |
| | " | " | 5 $\frac{1}{2}$ % |
| | " | " | <u>\$ 49.88—, Ans.</u> |
| 259. | Interest for 6 m. | | \$ 113.5896 |
| | " | 18 d. | 11.35896 |
| | " | 5 " | 3.15527 |
| | " | 6 m. 23 d. | <u>\$ 128.10+, Ans.</u> |
| 260. | Interest for 6 m. | @ 6 % | \$ 175.9035 |
| | " | 9 d. | 8.795175 |
| | " | 5 m. 21 d. | <u>\$ 167.108325</u> |
| | " | " | 1 % |
| | " | " | 27.851387 |
| | " | " | 7 % |
| | " | " | <u>\$ 194.96—, Ans.</u> |

| | | | |
|------|------------------------------------|-------------|------------------------|
| 261. | Interest for 8 m. | @ 6 % . . . | \$ 1.29 |
| | " 10 d. | " " . . . | 0.05375 |
| | " 8 m. 10 d. | " " . . . | <u>\$ 1.34375</u> |
| | " " " 1½ % (¼ of 6 %) | | 0.33594 |
| | Principal | | 32.25 |
| | Amount for 8 m. 10 d. @ 7½ % . . . | | <u>\$ 33.93—, Ans.</u> |

| | | | |
|------|-------------------------------|--|------------------------|
| 262. | Principal | | \$ 75.37 |
| | Interest for 7 m. | | 2.63795 |
| | " 18 d. | | 0.22611 |
| | " 4 " | | 0.05025 |
| | Amount for 7 m. 22 d. | | <u>\$ 78.28+, Ans.</u> |

| | | | |
|------|-------------------------------|--|------------------------|
| 263. | Principal | | \$ 87.45 |
| | Interest for 7 m. | | 3.06075 |
| | " 21 d. | | 0.306075 |
| | Amount for 7 m. 21 d. | | <u>\$ 90.82—, Ans.</u> |

| | | | |
|------|-----------------------------------|-------------|-------------------------|
| 264. | Interest for 3 m. | @ 6 % . . . | \$ 2.63505 |
| | " 12 d. | " " . . . | 0.35134 |
| | " 1 " | " " . . . | 0.02928 |
| | " 3 m. 13 d. | " " . . . | <u>\$ 3.01567</u> |
| | " " " 1 % . . . | | 0.50261 |
| | Principal | | 175.67 |
| | Amount for 3 m. 13 d. @ 7 % . . . | | <u>\$ 179.19—, Ans.</u> |

| | | | |
|------|----------------------------------|-------------|-------------------------|
| 265. | Interest for 3 m. | @ 6 % . . . | \$ 2.90145 |
| | " 6 d. | " " . . . | 0.19343 |
| | " 3 m. 6 d. | " " . . . | <u>\$ 3.09488</u> |
| | " " " 1 % . . . | | 0.51581 |
| | " " " 5 % . . . | | <u>\$ 2.579</u> |
| | Principal | | 193.43 |
| | Amount for 3 m. 6 d. @ 5 % . . . | | <u>\$ 196.009, Ans.</u> |

| | | |
|-------------------------------------|-------------|-------------------------|
| 266. Interest for 5 m. | @ 6 % . . . | \$ 5.44125 |
| " 25 d. | " " . . . | 0.906875 |
| " 5 m. 25 d. | " " . . . | <u>\$ 6.348125</u> |
| " " " 1 % . . . | | 1.058021 |
| " " " $\frac{3}{10}$ % . . . | | 0.317406 |
| Principal | | 217.65 |
| Amount for 5 m. 25 d. @ 7.3 % . . . | | <u>\$ 225.37+, Ans.</u> |

Exact interest for 178 days, $\$ 0.0002 \times 178 \times 17.65 = \$ 7.75-$.
 Amount, $\$ 217.65 + \$ 7.75 = \$ 225.40$, Ans.

| | |
|-------------------------------|-------------------------|
| 267. Principal | \$ 375.18 |
| Interest for 4 m. | 7.5036 |
| " 12 d. | 0.75036 |
| Amount for 4 m. 12 d. | <u>\$ 383.43+, Ans.</u> |

| | | |
|--|-------------|-------------------------|
| 268. Interest for 6 m. | @ 6 % . . . | \$ 6.5925 |
| " 6 d. | " " . . . | 0.21975 |
| " 5 m. 24 d. | " " . . . | <u>\$ 6.37275</u> |
| " " " $\frac{1}{2}$ % . . . | | 0.531 |
| Principal | | 219.75 |
| Amount for 5 m. 24 d. @ $6\frac{1}{2}$ % . . . | | <u>\$ 226.65+, Ans.</u> |

| | | |
|--|-------------|-------------------------|
| 269. Interest for 5 m. | @ 6 % . . . | \$ 21.14625 |
| " 25 d. | " " . . . | 3.524375 |
| " 1 " | " " . . . | 0.140975 |
| " 5 m. 26 d. | " " . . . | <u>\$ 24.8116</u> |
| " " " $\frac{1}{2}$ % . . . | | 2.06763 |
| " " " $5\frac{1}{2}$ % . . . | | <u>\$ 22.744—</u> |
| Principal | | 845.85 |
| Amount for 5 m. 26 d. @ $5\frac{1}{2}$ % . . . | | <u>\$ 868.59+, Ans.</u> |

| | |
|-------------------------------|--------------------------|
| 270. Principal | \$ 2845.15 |
| Interest for 2 m. | 28.4515 |
| " 24 d. | 11.3806 |
| Amount for 2 m. 24 d. | <u>\$ 2884.98+, Ans.</u> |

| | |
|---------------------------------|-----------------------|
| 271. Interest for 11 m. | \$ 3.9875 |
| “ 12 d. | 0.145 |
| “ 2 “ | 0.02417 |
| “ <u>11 m. 14 d.</u> | <u>\$ 4.16—, Ans.</u> |

| | |
|---------------------------------|------------------------|
| 272. Interest for 20 m. | \$ 8.575 |
| “ 13 “ | 5.57375 |
| “ 6 d. | 0.08575 |
| “ 1 “ | 0.01429 |
| “ <u>2 yr. 9 m. 7 d.</u> . . . | <u>\$ 14.25—, Ans.</u> |

| | |
|----------------------------------|------------------------|
| 273. Interest for 8 m. @ 6 % . . | \$ 73.726 |
| “ 24 d. “ “ . . | 7.3726 |
| “ 3 “ “ “ . . | 0.9216 |
| “ <u>8 m. 27 d.</u> “ “ . . | <u>\$ 82.0202</u> |
| “ “ “ 1 % . . | 13.67 |
| “ “ “ $\frac{3}{16}$ % . . | 4.101 |
| “ “ “ $7\frac{3}{16}$ % . . | <u>\$ 99.79+, Ans.</u> |

Exact interest for 270 days, $\$0.0002 \times 270 \times 1843.15 =$
 $\$99.53$, Ans.

| | |
|-----------------------------------|-------------------------|
| 274. Interest for 5 yr. @ 6 % . . | \$ 150 |
| “ 5 m. “ “ . . | 12.50 |
| “ 25 d. “ “ . . | 2.083 |
| “ 1 “ “ “ . . | 0.083 |
| “ <u>5 yr. 5 m. 26 d.</u> “ “ . . | <u>\$ 164.666</u> |
| “ “ “ 1 % . . | 27.444 |
| “ “ “ $7\frac{1}{2}$ % . . | <u>\$ 192.11+, Ans.</u> |

| | |
|------------------------------------|-------------------------|
| 275. Interest for 100 m. @ 6 % . . | \$ 1250 |
| “ 2 “ “ “ . . | 25 |
| “ 6 d. “ “ . . | 2.50 |
| “ 1 “ “ “ . . | 0.417 |
| “ <u>8 yr. 6 m. 7 d.</u> “ “ . . | <u>\$ 1277.917</u> |
| “ “ “ $1\frac{1}{2}$ % . . | 319.479 |
| “ “ “ $4\frac{1}{2}$ % . . | <u>\$ 958.44—, Ans.</u> |

| | | |
|-------------------------|-----------------------|------------------|
| 276. Interest for 40 m. | @ 6 % . . | \$ 175.252 |
| “ 5 “ | “ “ . . | 21.9065 |
| “ 9 d. | “ “ . . | 1.31439 |
| “ 3 yr. 9 m. 9 d. | “ “ . . | \$ 198.47289 |
| “ “ | “ 1 % . . | 33.07881 |
| “ “ | “ $\frac{3}{4}$ % . . | 9.92364 |
| “ “ | “ 7.3 % . . | \$ 241.48—, Ans. |

Exact interest for 3 yr. 282 d., $\$0.073 \times 3 \times 876.26 +$
 $\$0.0002 \times 282 \times 876.26 = \241.32 , Ans.

| | | |
|-------------------------|-------------|----------------|
| 277. Interest for 13 m. | @ 6 % . . . | \$ 46.43275 |
| “ 4 d. | “ “ . . . | 0.47623 |
| “ 1 yr. 1 m. 4 d. | “ “ . . . | \$ 46.90898 |
| “ “ | “ 1 % . . . | 7.81816 |
| “ “ | “ 5 % . . . | \$ 39.09, Ans. |

| | |
|--------------------------------|------------------|
| 278. Interest for 9 m. | \$ 129.3831 |
| “ 1 d. | 0.47919 |
| “ 9 m. 1 d. | \$ 129.86+, Ans. |

| | |
|---------------------------------|------------------|
| 279. Interest for 10 m. | \$ 181.788 |
| “ 1 “ | 18.1788 |
| “ 15 d. | 9.0894 |
| “ 1 “ | 0.60596 |
| “ 11 m. 16 d. | \$ 209.66+, Ans. |

| | | |
|------------------------|-------------|-----------------|
| 280. Interest for 9 m. | @ 6 % . . . | \$ 262.94625 |
| “ 18 d. | “ “ . . . | 17.52975 |
| “ 3 “ | “ “ . . . | 2.92162 |
| “ 9 m. 21 d. | “ “ . . . | \$ 283.39762 |
| “ “ | “ 1 % . . . | 47.23293 |
| “ “ | “ 7 % . . . | \$ 330.63, Ans. |

| | |
|---------------------------|------------------------|
| 281. Principal | \$ 87.45 |
| Interest for 6 m. | 2.6235 |
| “ 1 d. | 0.014575 |
| “ 6 m. 1 d. | <u>\$ 90.09—, Ans.</u> |

| | |
|-----------------------------------|-------------------------|
| 282. Principal | \$ 95.87 |
| Interest for 20 m. | 9.587 |
| “ 6 “ | 2.8761 |
| “ 30 d. | 0.4793 |
| Amount for 2 yr. 2 m. 30 d. . . . | <u>\$ 108.81+, Ans.</u> |

| | |
|---------------------------------------|------------------------|
| 283. Interest for 14 m. @ 6 % . . | \$ 5.2045 |
| “ 1 “ “ “ . . | 0.37175 |
| “ 14 d. “ “ . . | 0.17348 |
| “ 1 yr. 3 m. 14 d. “ “ . . | <u>\$ 5.74973</u> |
| “ “ “ 1 % . . | 0.95829 |
| Principal | 74.35 |
| Amount for 1 yr. 3 m. 14 d. @ 7 % . . | <u>\$ 81.06—, Ans.</u> |

| | |
|-------------------------------------|------------------------|
| 284. Interest for 12 m. @ 6 % . . . | \$ 6.945 |
| “ 12 d. “ “ . . . | 0.2315 |
| “ 5 “ “ “ . . . | 0.09646 |
| “ 1 yr. 17 d. “ “ . . . | <u>\$ 7.27296</u> |
| “ “ “ 1 % . . . | 1.21216 |
| “ “ “ 5 % . . . | <u>\$ 6.06</u> |
| Principal | 115.75 |
| Amount for 1 yr. 17 d. @ 5 % . . . | <u>\$ 121.81, Ans.</u> |

| | |
|--|-------------------------|
| 285. Interest for 16 m. @ 6 % . . | \$ 18.18 |
| “ 4 d. “ “ . . | 0.1515 |
| “ 1 yr. 3 m. 26 d. “ “ . . | <u>\$ 18.0285</u> |
| “ “ “ $\frac{1}{2}$ % . . | 1.5024 |
| “ “ “ $5\frac{1}{2}$ % . . | <u>\$ 16.5261</u> |
| Principal | 227.25 |
| Amount for 1 yr. 3 m. 26 d. @ $5\frac{1}{2}$ % . . | <u>\$ 243.78—, Ans.</u> |

| | |
|-------------------------------|-------------------------|
| 286. Principal | \$ 375.48 |
| Interest for 6 m. | 11.2644 |
| “ 1 “ | 1.8774 |
| “ 18 d. | 1.12644 |
| Amount for 7 m. 18 d. | <u>\$ 389.75—, Ans.</u> |

| | |
|--|-------------------------|
| 287. Interest for 10 m. @ 6 % . . . | 29.175 |
| “ 1 d. “ “ . . . | 0.0972 |
| “ 10 m. 1 d. “ “ . . . | <u>\$ 29.2722</u> |
| “ “ “ $\frac{1}{2}$ % . . . | 2.4393 |
| Principal | 583.50 |
| Amount for 10 m. 1 d. @ $6\frac{1}{2}$ % . . . | <u>\$ 615.21+, Ans.</u> |

| | |
|-------------------------------------|-------------------------|
| 288. Interest for 10 m. @ 6 % . . . | \$ 39.2625 |
| “ 6 d. “ “ . . . | 0.78525 |
| “ 9 m. 24 d. “ “ . . . | <u>\$ 38.47725</u> |
| “ “ “ 1 % . . . | 6.41287 |
| Principal | 785.25 |
| Amount for 9 m. 24 d. @ 7 % . . . | <u>\$ 830.14+, Ans.</u> |

| | |
|--|--------------------------|
| 289. Interest for 14 m. @ 6 % . . . | \$ 89.2885 |
| “ 7 d. “ “ . . . | 1.48814 |
| “ 1 yr. 2 m. 7 d. “ “ . . . | <u>\$ 90.77664</u> |
| “ “ “ 1 % . . . | 15.12944 |
| “ “ “ $\frac{3}{16}$ % . . . | 4.538832 |
| Principal | 1275.55 |
| Amount for 1 yr. 2 m. 7 d. @ $7\frac{3}{16}$ % . . . | <u>\$ 1385.99+, Ans.</u> |

Exact interest for 433 d., $\$0.0002 \times 433 \times 1275.55 = \110.46 .

Amount, $\$1275.55 + \$110.46 = \$1386.01$, Ans.

| | |
|---|--------------------------|
| 290. Interest for 14 m. @ 6 % . . . | \$ 248.3684 |
| “ 1 “ “ “ . . . | 17.7406 |
| “ 18 d. “ “ . . . | 10.64436 |
| “ 1 “ “ “ . . . | 0.59135 |
| “ 1 yr. 3 m. 19 d. “ “ . . . | <u>\$ 277.34471</u> |
| “ “ “ 2 % . . . | 92.44824 |
| Principal | 3548.12 |
| Amount for 1 yr. 3 m. 19 d. @ 8 % . . . | <u>\$ 3917.91+, Ans.</u> |

| | |
|--|------------------------|
| 291. Interest for 120 d. | \$ 1.305 |
| “ 24 “ | 0.261 |
| “ <u>144 d.</u> | <u>\$ 1.566</u> |
| $\frac{1}{3}$ of \$ 1.566 | 0.0215— |
| | <u>\$ 1.54+, Ans.</u> |
| 292. Interest for 180 d. | \$ 2.6925 |
| “ 30 “ | 0.44875 |
| “ 6 “ | 0.08975 |
| “ 2 “ | 0.02992 |
| “ <u>218 d.</u> | <u>\$ 3.26092</u> |
| $\frac{1}{3}$ of \$ 3.26092 | 0.04467 |
| | <u>\$ 3.22—, Ans.</u> |
| 293. Interest for 360 d. @ 6 % | \$ 10.53 |
| “ 20 “ “ “ | 0.585 |
| “ 9 “ “ “ | 0.263 |
| “ <u>389 d.</u> “ “ | <u>\$ 11.378</u> |
| “ “ “ 1 % | 1.896 |
| “ “ “ $\frac{1}{7}$ % | <u>\$ 13.274</u> |
| $\frac{1}{3}$ of \$ 13.274 | 0.182 |
| | <u>\$ 13.09+, Ans.</u> |
| 294. Interest for 240 d. | \$ 10.006 |
| “ 20 “ | 0.834 |
| “ 9 “ | 0.375 |
| “ <u>269 d.</u> | <u>\$ 11.215</u> |
| $\frac{1}{3}$ of \$ 11.215 | 0.154 |
| | <u>\$ 11.06+, Ans.</u> |
| 295. Interest for 240 d. @ 6 % | \$ 13.9448 |
| “ 24 “ “ “ | 1.39448 |
| “ 4 “ “ “ | 0.23241 |
| “ <u>268 d.</u> “ “ | <u>\$ 15.57169</u> |
| “ “ “ 1 % | 2.59528 |
| “ “ “ 5 % | <u>\$ 12.97641</u> |
| $\frac{1}{3}$ of \$ 12.97641 | 0.17775 |
| | <u>\$ 12.80—, Ans.</u> |

| | | |
|------|-------------------------------------|------------------------|
| 296. | Interest for 180 d. @ 6 % | \$ 17.3085 |
| | “ 24 “ “ | 2.3078 |
| | “ 1 “ “ | 0.09616 |
| | “ 205 d. “ “ | \$ 19.71246 |
| | “ “ “ $\frac{1}{2}$ % | 1.6427 |
| | “ “ “ $5\frac{1}{2}$ % | \$ 18.0697 |
| | $\frac{7}{8}$ of \$ 18.0697 | 0.2475 |
| | | <u>\$ 17.82+, Ans.</u> |

297. $\$ 560 \times 0.02\frac{1}{4} = \$ 12.60$, Ans.

298. $\$ 85.35 \times 0.03\frac{3}{8} = \$ 3.10+$, Ans.

299. $\$ 117.85 \times 0.02 \times 5\frac{3}{4} = \$ 13.20-$, Ans.

300. $\$ 18 \div (\$ 300 \times 0.00\frac{3}{4}) = 8$. 8 %, Ans.

301. $\$ 48 \div (\$ 1200 \times 0.00\frac{3}{4}) = 6$. 6 %, Ans.

302. $\$ 8.10 \div (\$ 45 \times 0.045) = 4$. 4 %, Ans.

303. $\$ 33.32 \div (\$ 595 \times 0.007) = 8$. 8 %, Ans.

304. $\$ 40 \div (\$ 800 \times 0.00\frac{3}{4}) = 6$. 6 %, Ans.

305. $\$ 142.02 \div (\$ 648 \times 0.03\frac{1}{2}) = 6$. 6 %, Ans.

(Amount — Interest = Principal.)

306. $\$ 112.50 \div (\$ 2500 \times 0.005) = 9$. 9 %, Ans.

307. $\$ 96.25 \div (\$ 1650 \times 0.01\frac{1}{2}) = 4$. 4 %, Ans.

308. $\$ 9.99 \div (\$ 45 \times 0.01\frac{1}{6}) = 12$. 12 %, Ans.

309. $\$ 105 \div (\$ 600 \times 0.025) = 7$. 7 %, Ans.

310. $\$ 46.20 \div (\$ 180 \times 0.035) = 7\frac{1}{2}$. $7\frac{1}{2}$ %, Ans.

311. $\$ 6.25 \div (\$ 50 \times 0.025) = 5$. 5 %, Ans.

312. $\$ 21.30 \div (\$ 142 \times 0.03) = 5$. 5 %, Ans.

313. $\$ 100 \div (\$ 500 \times 0.03) = 6\frac{2}{3}$. $6\frac{2}{3}$ %, Ans.

314. $\$ 86.85 \div 1.158 = \$ 75$, Ans.

315. $\$ 600 \div 1.162\frac{1}{2} = \$ 516.28-$, Ans.

316. $\$1524.10 \div 1.2700\frac{1}{2} = \1200 , Ans.
 317. $\$485.40 \div 1.0625 = \$456.85-$, Ans.
 318. $\$129332.04 \div 1.164 = \111110 , Ans.
 319. $\$325 \div 1.12\frac{1}{2} = \$289.03+$, Ans.
 320. $\$2072.25 \div 1.00\frac{1}{12} = \$2063.65+$, Ans.
 321. $\$520 \div 1.04 = \500 , Ans.
 322. $\$500 \div 1.09 = \$458.72-$, Ans.
 323. $\$756 \div 1.08 = \700 , Ans.
 324. $\$890 \div 1.12 = \$794.64+$, Ans.
 325. $\$1410 - \$1410 \div 1.175 = \$210$, Ans.
 326. $\$6.75 \div \$27 = \frac{1}{4}$. 3 m., Ans.
 327. $\$10.15 \div \$50.75 = \frac{1}{5}$. 2 m. 12 d., Ans.
 328. $\$9.10 \div \$36.40 = \frac{1}{4}$. 3 m., Ans.
 329. $\$39.37 \div \$12.25 = 3.214-$. 3 yr. 2 m. 17 d., Ans.
 330. $\$18.125 \div \$22.50 = 0.8055+$. 9 m. 20 d., Ans.
 331. $\$29.63 \div \$7.2225 = 4.1026+$. 4 yr. 1 m. 7 d., Ans.
 332. $\$63.45 \div \$50.76 = 1.25$. 1 yr. 3 m., Ans.
 333. $\$158 \div \$60 = 2.6\frac{1}{3}$. 2 yr. 7 m. 18 d., Ans.
 334. $\$588 \div \$490 = 1.2$. 1 yr. 2 m. 12 d., Ans.
 335. $\$14.85 \div \$9.90 = 1.5$. 1 yr. 6 m., Ans.
 336. $\$775 \div \$300 = 2\frac{5}{12}$. 2 yr. 7 m., Ans.
 337. $\$44.45 \div \$12.70 = 3.5$. 3 yr. 6 m., Ans.
 338. $100 \div 8 = 12.5$. 12 yr. 6 m., Ans.
 339. $\$13 \div 0.04 = \325 , Ans.
 340. $\$800 \div 0.25 = \3200 , Ans.
 341. $\$171.70 \div 0.202 = \850 , Ans.

342. $\$384 \div 0.256 = \1500 , Ans.

343. $\$627 \div 0.133 = \4714.29 —, Ans.

344. $\$1000 \div 0.06 = \16666.67 , Ans.

345. Principal, \$1; interest, \$2; time, 37 yr. 6 m., to find the rate.

$$\$2 \div \$0.375 = 5\frac{1}{3}. \quad 5\frac{1}{3} \%, \text{ Ans.}$$

346. $300 \div 8 = 37.5$. 37 yr. 6 m., Ans.

347. $\$376.25 \div (\$500 \times 0.06) = 12.541\frac{2}{3}$.

July 8, 1895, + 12 yr. 6 m. 15 d. = Jan. 23, 1908, Ans.

348. $200 \div 8 = 25$.

Jan. 4, 1895, + 25 yr. = Jan. 4, 1920, Ans.

349. $\$0.50 \div \$0.04 = 12.5$. $12\frac{1}{2} \%$, Ans.

350. $\$117 \div (\$234 \times 0.09) = 5\frac{1}{2}$.

Oct. 25, 1890, + 5 yr. 6 m. 20 d. = May 15, 1896, Ans.

| | |
|--|--------------------|
| 351. Principal | \$ 3400 |
| Interest to Sept. 13, 1893 (1 yr. 2 m. 6 d.) | 241.40 |
| Amount " " | <u>\$ 3641.40</u> |
| Payment " " | 1250 |
| New principal " " | <u>\$ 2391.40</u> |
| Interest to May 1, 1895 (1 yr. 7 m. 18 d.). | 234.357 |
| Amount " " | <u>\$ 2625.757</u> |
| Payment March 4, " | 150 |
| Amount due May 1, " Ans. | <u>\$ 2475.76—</u> |

| | |
|---|------------------|
| 352. Principal | \$ 325 |
| Interest to July 17, 1893 (10 m. 15 d.) . | 22.75 |
| Amount " " | <u>\$ 347.75</u> |
| Payment " " | 55.50 |
| New principal " " | <u>\$ 292.25</u> |
| Interest to Dec. 17, 1895 (2 yr. 5 m.). | 56.50 |
| Amount " " | <u>\$ 348.75</u> |
| Payments to " " | 99 |
| New principal " " | <u>\$ 249.75</u> |
| Interest to Sept. 2, 1896 (8 m. 16 d.). | 14.21 |
| Amount due " " Ans. | <u>\$ 263.96</u> |

| | | |
|------|---|---------------------|
| 353. | Principal | \$ 17440 |
| | Interest to June 23, 1891 (3 m. 16 d.) . . | 308.107 |
| | Amount " " | <u>\$ 17748.107</u> |
| | Payment " " | 5000 |
| | New principal " " | <u>\$ 12748.107</u> |
| | Interest to Jan. 7, 1893 (1 yr. 6 m. 15 d.) . | 1179.20 |
| | Amount " " | <u>\$ 13927.307</u> |
| | Payments to " " | 2225 |
| | New principal " " | <u>\$ 11702.307</u> |
| | Interest to July 6, 1893 (5 m. 29 d.) . . | 349.119 |
| | Amount " " | <u>\$ 12051.426</u> |
| | Payment " " | 500 |
| | New principal " " | <u>\$ 11551.426</u> |
| | Interest to June 19, 1894 (11 m. 13 d.) . | 660.357 |
| | Amount due " " Ans. | <u>\$ 12211.783</u> |
| 354. | Principal | \$ 445 |
| | Interest to Feb. 19, 1894 (2 yr. 9 m.) . . | 73.425 |
| | Amount " " | <u>\$ 518.425</u> |
| | Payments to " " | 233.94 |
| | New principal " " | <u>\$ 284.485</u> |
| | Interest to May 8, 1895 (1 yr. 2 m. 19 d.) . | 20.815 |
| | Amount " " | <u>\$ 305.30</u> |
| | Payment " " | 144.17 |
| | New principal " " | <u>\$ 161.13</u> |
| | Interest to Jan. 16, 1896 (8 m. 8 d.) . . | 6.66 |
| | Amount due " " Ans. | <u>\$ 167.79</u> |
| 355. | Principal | \$ 785 |
| | Interest to Dec. 26, 1893 (6 yr. 6 m. 19 d.) | 308.636 |
| | Amount " " | <u>\$ 1093.636</u> |
| | Payments to " " | 425 |
| | New principal " " | <u>\$ 668.636</u> |
| | Interest to July 3, 1894 (6 m. 7 d.) . . | 20.839 |
| | Amount " " | <u>\$ 689.475</u> |
| | Payment " " | 35 |
| | New principal " " | <u>\$ 654.475</u> |
| | Interest to March 7, 1895 (8 m. 4 d.) . . | 26.615 |
| | Amount due " " Ans. | <u>\$ 681.09</u> |

| | | |
|------|---|--------------------|
| 356. | Principal | \$ 700 |
| | Interest to Sept. 7, 1891 (3 yr. 9 m.) . . | 183.75 |
| | Amount " " | <u>\$ 883.75</u> |
| | Payments to " " | 452.25 |
| | New principal " " | <u>\$ 431.50</u> |
| | Interest to July 17, 1896 (4 yr. 10 m. 10 d.) | 146.83 |
| | Amount " " | <u>\$ 578.33</u> |
| | Payment July 3, 1894 | 25 |
| | Amount due July 17, 1896 Ans. | <u>\$ 553.33</u> |
| 357. | Principal | \$ 1200 |
| | Interest to Aug. 6, 1894 (2 m. 27 d.) . . | 17.40 |
| | Amount " " | <u>\$ 1217.40</u> |
| | Payment " " | 250 |
| | New principal " " | <u>\$ 967.40</u> |
| | Interest to July 8, 1895 (11 m. 2 d.) . . | 53.529 |
| | Amount " " | <u>\$ 1020.929</u> |
| | Payments to " " | 408.50 |
| | New principal " " | <u>\$ 612.429</u> |
| | Interest to Dec. 10, 1895 (5 m. 2 d.) . . | 15.515 |
| | Amount " " | <u>\$ 627.944</u> |
| | Payment " " | 100 |
| | New principal " " | <u>\$ 527.944</u> |
| | Interest to April 10, 1896 (4 m.) . . . | 10.559 |
| | Amount due " " Ans. | <u>\$ 538.50+</u> |
| 358. | Principal | \$ 2584 |
| | Interest to Aug. 17, 1891 (6 m.) . . . | 77.52 |
| | Amount " " | <u>\$ 2661.52</u> |
| | Payment " " | 500 |
| | New principal " " | <u>\$ 2161.52</u> |
| | Interest to Oct. 19, 1893 (2 yr. 2 m. 2 d.) . | 281.718 |
| | Amount " " | <u>\$ 2443.238</u> |
| | Payments to " " | 1000 |
| | New principal " " | <u>\$ 1443.238</u> |
| | Interest to Jan. 1, 1895 (1 yr. 2 m. 13 d.) . | 104.154 |
| | Amount due " " Ans. | <u>\$ 1547.39+</u> |

| | |
|---|-------------------|
| 359. Principal | \$ 750 |
| Interest to Jan. 10, 1891 (10 m. 5 d.) . . | 38.125 |
| Amount " " | <u>\$ 788.125</u> |
| Payment " " | 200 |
| New principal " " | <u>\$ 588.125</u> |
| Interest to Oct. 11, 1894 (3 yr. 9 m. 1 d.) . | 132.426 |
| Amount " " | <u>\$ 720.551</u> |
| Payment " " | 300 |
| New principal " " | <u>\$ 420.551</u> |
| Interest to Mar. 3, 1896 (1 yr. 4 m. 20 d.) | 35.046 |
| Amount due " " Ans. | <u>\$ 455.60—</u> |

| | |
|--|-------------------|
| 360. Principal | \$ 757.14 |
| Interest to Jan. 8, 1894 (7 m. 22 d.) . . | 29.276 |
| Amount " " | <u>\$ 786.416</u> |
| Payment " " | 40 |
| New principal " " | <u>\$ 746.416</u> |
| Interest to July 30, 1894 (6 m. 22 d.) . . | 25.129 |
| Amount " " | <u>\$ 771.545</u> |
| Payments to " " | 520 |
| New principal " " | <u>\$ 251.545</u> |
| Interest to July 30, 1896 (2 yr.) | 30.185 |
| Amount " " | <u>\$ 281.73</u> |
| Payment May 17, 1896 | 20.14 |
| Amount due July 30, 1896 Ans. | <u>\$ 261.59</u> |

| | |
|--|-------------------|
| 361. Principal | \$ 680 |
| Interest to Apr. 18, 1895 (1 yr. 11 m. 6 d.) | 78.88 |
| Amount " " | <u>\$ 758.88</u> |
| Payments to " " | 145 |
| New principal " " | <u>\$ 613.88</u> |
| Interest to July 7, 1896 (1 yr. 2 m. 19 d.) | 44.92— |
| Amount due " " Ans. | <u>\$ 658.80—</u> |

| | |
|---|-------------------|
| 362. Principal | \$ 425 |
| Interest to June 1, 1895 (2 m. 7 d.) . . | 6.328 |
| Amount " " | <u>\$ 431.328</u> |
| Payment " " | 75 |
| New principal " " | <u>\$ 356.328</u> |
| Interest to Dec. 30, 1895 (6 m. 29 d.) . | 16.549 |
| Amount " " | <u>\$ 372.877</u> |
| Payment " " | 120 |
| New principal " " | <u>\$ 252.877</u> |
| Interest to Sept. 1, 1896 (8 m. 2 d.) . . | 13.599 |
| Amount due " " Ans. | <u>\$ 266.48—</u> |

| | |
|----------------------------|--------------------|
| 363. Principal | \$ 5000 |
| Interest for 1 yr. | 300 |
| Amount | <u>\$ 5300</u> |
| 1st payment | 500 |
| New principal | <u>\$ 4800</u> |
| Interest for 1 yr. | 288 |
| Amount | <u>\$ 5088</u> |
| 2d payment | 500 |
| New principal | <u>\$ 4588</u> |
| Interest for 1 yr. | 275.28 |
| Amount | <u>\$ 4863.28</u> |
| 3d payment | 500 |
| New principal | <u>\$ 4363.28</u> |
| Interest for 1 yr. | 261.797 |
| Amount | <u>\$ 4625.077</u> |
| 4th payment | 500 |
| New principal | <u>\$ 4125.077</u> |
| Interest for 1 yr. | 247.505 |
| Amount | <u>\$ 4372.582</u> |
| 5th payment | 500 |
| Amount due Ans. | <u>\$ 3872.58+</u> |

(364)

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|--|------------------|------------|
| Amount of | | |
| \$ 317.35 from July 5, 1894, to May 1, 1895, | | \$ 333.006 |
| 65 " Sept. 3, " " " | \$ 67,578 | |
| 75 " Nov. 13, " " " | 77.10 | |
| 150 " Jan. 7, 1895 " " | 152.85 | |
| | | 297.528 |
| Amount due May 1, 1895 Ans. | \$ 35.48— | |

(365.)

| | | |
|--|-----------|-----------------|
| Amount of | | |
| \$ 75 from Jan. 2, 1895, to July 31, 1895, | | \$ 77.612 |
| 15 " May 6, " " " " | \$ 15.212 | |
| 25 " June 18, " " " " | 25.179 | |
| | | <u>40.391</u> |
| Amount due July 31, 1895 | Ans. | <u>\$ 37.22</u> |

366. $\$1.191016 \times 530 \times 1.0134 = \$639.55-$, Ans.

(See Table, page 202.)

367. $\$1.1236 \times 325 \times 1.042 = \380.51 —, Ans.

368. $\$1.191016 \times 25 \times 1.025 = \$30.52-$, Ans.

369. $\$1.262477 \times 571.45 \times 1.0203 = \$736.35+$, Ans.

370. $\$3.869684 \times 1.967151 \times 200 = \$1522.45+$, Ans.

NOTE. Multiplying the amount of \$1 for 20 years by the amount for 10 years gives the amount for 30 years.

371. $\$3.207135 \times 300 = \$962.14+$, Ans.

372. $\$1.191016 \times 850 \times 1.03125 - \$850 = \$194.42+$, Ans.

373. $\$1.1236 \times 252 \times 1.034 - \$252 = \$40.77+$, Ans.

374. $\$0.225043 \times 1100 = \$247.55-$, Ans.

375. $\$1.1664 \times 635 \times 1.0214 - \$635 = \$121.46+$, Ans.

376. $\$500 \times 1.02 \times 1.02 \times 1.02 \times 1.0051 = \$533.43+$, Ans.

377. $\$1200 \times 1.015 \times 1.015 \times 1.015 \times 1.015 \times 1.015 \times$
 $1.015 \times 1.015 \times 1.015 = \$1351.80+, \text{ Ans.}$

378. $\$4320 \div \$2500 = 1.728$. As $1.728 = 1.20 \times 1.20 \times 1.20$, the rate is 20 %, 1st Ans.

$\$1820 \div \$75 = 24\frac{4}{5}$. $24\frac{4}{5}$ %, 2d Ans.

379. $\$800 \div 1.191016 = \$671.70-$, Ans.

380. $\$7320 \div (1.10 \times 1.10 \times 1.10 \times 1.10) = \5000 , Ans.

381. $\$1 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 - \$1 = \$63$, Ans.

382. $\$2500 \times 1.015 \times 1.015 \times 1.015 \times 1.015 \times 1.015 \times 1.015 \times 1.01 - \$2500 = \$260.94+$, Ans.

383. Interest of \$640 for 2 m. @ 6 % . \$6.40

" " " 1 d. " " . 0.10 $\frac{3}{4}$

" " " 2 m. 1 d. " " . \$6.50 $\frac{3}{4}$

" " " " " 2 % . 2.16 $\frac{3}{4}$

" " " " " 8 % . \$8.68—, disc't, Ans.

$\$640 - \$8.68 = \$631.32$, proceeds, Ans.

(384.)

Interest of \$287.50 for 1 m. @ 6 % . \$1.4375

" " " 20 d. " " . 0.9583

" " " 1 m. 20 d. " " . \$2.3958

" " " " " 1 % . 0.3993

" " " " " 7 % . \$2.80—, disc't, Ans.

$\$287.50 - \$2.80 = \$284.70$, proceeds, Ans.

(385.)

Interest of \$186.75 for 4 m. @ 6 % . \$3.735

" " " 6 d. " " . 0.18675

" " " 4 m. 6 d. " " . \$3.92175

" " " " " 1 $\frac{1}{2}$ % . 0.98044

" " " " " 7 $\frac{1}{2}$ % . \$4.90+, disc't, Ans.

$\$186.75 - \$4.90 = \$181.85$, proceeds, Ans.

386. Interest of \$625 for 48 d. . . \$5

" " " 5 " . . . 0.521

" " " 53 d. . . \$5.52, disc't, Ans.

$\$625 - \$5.52 = \$619.48$, proceeds, Ans.

For answers without grace, see p. 189.

387. Interest of \$ 600 for 24 d. . . . \$2.40
 " " " 3 " " . . . 0.30
 " " " 27 d. . . . \$2.70, disc't, Ans.

• \$ 600 — \$ 2.70 = \$ 597.30, proceeds, Ans.

388. Interest of \$ 500 for 30 d. @ 6 % . . \$ 2.50
 " " " 3 " " . . . 0.25
 " " " 33 d. " " . . \$ 2.75
 " " " " " 1 % . . . 0.46—
 " " " " " 7 % . . \$ 3.21, disc't, Ans.

\$ 500 — \$ 3.21 = \$ 496.79, proceeds, Ans.

389. Interest of \$ 846 for 30 d. . . . \$ 4.23
 " " " 3 " . . . 0.42
 " " " 33 d. . . . \$ 4.65, disc't, Ans.

\$ 846 — \$ 4.65 = \$ 841.35, proceeds, Ans.

390. Interest of \$ 755.64 for 60 d. . . . \$ 7.5564
 " " " 30 " . . . 3.7782
 " " " 3 " . . . 0.3778
 " " " 93 d. . . . \$ 11.71, disc't, Ans.

\$ 755.64 — \$ 11.71 = \$ 743.93, proceeds, Ans.

391. Interest of \$ 417.13 for 4 m. @ 6 % \$ 8.3426
 " " " 3 d. " " 0.20856
 " " " 4 m. 3 d. " " \$ 8.55116
 " " " " " 1 % 1.42519
 " " " " " 7 % \$ 9.98, disc't, Ans.

\$ 417.13 — \$ 9.98 = \$ 407.15, proceeds, Ans.

392. Interest of \$ 639.50 for 60 d. . . . \$ 6.395
 " " " 20 " . . . 2.1316
 " " " 1 " . . . 0.1066
 " " " 81 d. . . . \$ 8.63, disc't, Ans

\$ 639.50 — \$ 8.63 = \$ 630.87, proceeds, Ans.

393. Interest of \$ 2500 for 2 m. . . . \$ 25
 " " " 3 d. . . . 1.25
 " " " 2 m. 3 d. . . . \$ 26.25, disc't, Ans.

$$\text{\$ } 2500 - \text{\$ } 26.25 = \text{\$ } 2473.75, \text{ proceeds, Ans.}$$

394. Interest of \$ 200 for 30 d. @ 6 % . . \$ 1
 " " " 3 " " " . . 0.10
 " " " 33 d. " " . . \$ 1.10
 " " " " " 1 % . . 0.18
 " " " " " 7 % . . \$ 1.28, disc't, Ans.

$$\text{\$ } 200 - \text{\$ } 1.28 = \text{\$ } 198.72, \text{ proceeds, Ans.}$$

395. Interest of \$ 470.66 for 60 d. . . . \$ 4.7066
 " " " 3 " 0.2353
 " " " 63 d. \$ 4.94, disc't.

$$\text{\$ } 470.66 - \text{\$ } 4.94 = \text{\$ } 465.72, \text{ avails, Ans.}$$

396. Interest of \$ 26.21 for 2 m. @ 6 % . \$ 0.2621
 " " " 2 d. " " . . 0.00873
 " " " 1 m. 28 d. " " . \$ 0.25337
 " " " " " 1½ % . . 0.06334
 " " " " " 7½ % . \$ 0.32, disc't.

$$\text{\$ } 26.21 - \text{\$ } 0.32 = \text{\$ } 25.89, \text{ avails, Ans.}$$

397. Interest of \$ 418.90 for 4 m. @ 6 % . \$ 8.378
 " " " 10 d. " " . . 0.6982
 " " " 1 " " " . . 0.0698
 " " " 4 m. 11 d. " " . \$ 9.146
 " " " " " 1 % . . 1.524
 " " " " " 7 % . \$ 10.67, disc't.

$$\text{\$ } 418.90 - \text{\$ } 10.67 = \text{\$ } 408.23, \text{ avails, Ans.}$$

398. Interest of \$ 568.40 for 2 m. = \$ 5.68, disc't.

$$\text{\$ } 568.40 - \text{\$ } 5.68 = \text{\$ } 562.72, \text{ avails, Ans.}$$

| | | |
|------|-------------------------------------|--------------------|
| 399. | Interest of \$981.50 for 2 m. @ 6 % | . \$9.815 |
| " | " " 1 " " " | . 4.9075 |
| " | " " 3 m. " " " | . \$14.7225 |
| " | " " " " 1 % | . 2.4537 |
| " | " " " " 7 % | . \$17.18, disc't. |

\$981.50 — \$17.18 = \$964.32, avails, Ans.

| | | |
|------|-----------------------------------|---------------------|
| 400. | Interest of \$784 for 60 d. @ 6 % | . . \$7.84 |
| " | " " 1 " " " | . . 0.13+ |
| " | " " 59 d. " " " | . . \$7.71+ |
| " | " " " " 1 % | . . 1.285 |
| " | " " " " 7 % | . . \$9.00, disc't. |

\$784 — \$9 = \$775, avails, Ans.

| | | |
|------|-----------------------------------|---------------------|
| 401. | Interest of \$625 for 72 d. @ 6 % | . . \$7.50 |
| " | " " 1 " " " | . . 0.10417 |
| " | " " 73 d. " " " | . . \$7.60417 |
| " | " " " " 1½ % | . . 1.90104 |
| " | " " " " 7½ % | . . \$9.51, disc't. |

\$625 — \$9.51 = \$615.49, avails, Ans.

| | | |
|------|--------------------------------------|-------------------|
| 402. | Interest of \$524.10 for 30 d. @ 6 % | . \$2.6205 |
| " | " " 3 " " " | . 0.26205 |
| " | " " 33 d. " " " | . \$2.88255 |
| " | " " " " 1½ % | . 0.72064 |
| " | " " " " 7½ % | . \$3.60, disc't. |

\$524.10 — \$3.60 = \$520.50, avails, Ans.

| | | |
|------|-----------------------------------|--------------------|
| 403. | Interest of \$3000 for 3 m. @ 6 % | . \$45 |
| " | " " 3 d. " " " | . 1.50 |
| " | " " 3 m. 3 d. " " " | . \$46.50 |
| " | " " " " 1 % | . 7.75 |
| " | " " " " 7 % | . \$54.25, disc't. |

\$3000 — \$54.25 = \$2945.75, avails, Ans.

| | | | |
|------|-------------------------------------|---|-------------------|
| 404. | Interest of \$ 1975 for 60 d. @ 6 % | . | \$ 19.75 |
| | " " " 3 " " " | . | 0.9875 |
| | " " " 63 d. " " | . | \$ 20.7375 |
| | " " " " " 1 % | . | 3.45625 |
| | " " " " " $\frac{3}{10}$ % | . | 1.036875 |
| | " " " " " 7.3 % | . | \$ 25.23, disc't. |

\$ 1975 — \$ 25.23 = 1949.77, avails, Ans.

Exact interest, \$ 0.0002 \times 63 \times 1975 = \$ 24.88, disc't.

\$ 1975 — \$ 24.88 = \$ 1950.12, avails, Ans.

405. Interest of \$ 700 for 72 d. = \$ 8.40, disc't.

\$ 700 — \$ 8.40 = \$ 691.60, avails, Ans.

| | | |
|------|---------------------------------------|--------------------|
| 406. | Interest of \$ 5768.45 for 4 m. . . . | \$ 115.369 |
| | " " " 3 d. . . . | 2.884 |
| | " " " 4 m. 3 d. . . . | \$ 118.25, disc't. |

\$ 5768.45 — \$ 118.25 = \$ 5650.20, avails, Ans.

| | | | |
|------|------------------------------------|---|--------------------|
| 407. | Interest of \$ 7543 for 2 m. @ 6 % | . | \$ 75.43 |
| | " " " 1 " " " | . | 37.715 |
| | " " " 3 d. " " | . | 3.7715 |
| | " " " 3 m. 3 d. " " | . | \$ 116.9165 |
| | " " " " " 1 % | . | 19.4861 |
| | " " " " " $\frac{3}{10}$ % | . | 5.84583 |
| | " " " " " 7.3 % | . | \$ 142.25, disc't. |

\$ 7543 — \$ 142.25 = \$ 7400.75, avails, Ans.

Exact interest, \$ 0.0002 \times 95 \times 7543 = \$ 143.32, disc't, Ans.

\$ 7543 — \$ 143.32 = \$ 7399.68, avails, Ans.

| | | | |
|------|------------------------------------|---|------------------|
| 408. | Interest of \$ 600 for 30 d. @ 6 % | . | \$ 3 |
| | " " " 3 " " " | . | 0.30 |
| | " " " 33 d. " " | . | \$ 3.30 |
| | " " " " " 2 % | . | 1.10 |
| | " " " " " 8 % | . | \$ 4.40, disc't. |

\$ 600 — \$ 4.40 = \$ 595.60, avails, Ans.

409. Interest of \$ 307.65 for 60 d. @ 6 % . \$ 3.0765

| | | | | | | | |
|---|---|---|-------|---|-----|---|------------------|
| " | " | " | 3 " | " | " | . | 0.153825 |
| " | " | " | 63 d. | " | " | . | \$ 3.230325 |
| " | " | " | " | " | 1 % | . | 0.538387 |
| " | " | " | " | " | 7 % | . | \$ 3.77, disc't. |

$$\$ 307.65 - \$ 3.77 = \$ 303.88, \text{ avails, Ans.}$$

410. Interest of \$ 513.50 for 30 d. @ 6 % . \$ 2.5675

| | | | | | | | |
|---|---|---|-------|---|------|---|------------------|
| " | " | " | 1 " | " | " | . | 0.08558 |
| " | " | " | 29 d. | " | " | . | \$ 2.48192 |
| " | " | " | " | " | 1½ % | . | 0.62048 |
| " | " | " | " | " | 7½ % | . | \$ 3.10, disc't. |

$$\$ 513.50 - \$ 3.10 = \$ 510.40, \text{ avails, Ans.}$$

411. Interest of \$ 700 for 4 m. . . . \$ 14

| | | | | | | | |
|---|---|---|-----------|---|---|---|-------------------|
| " | " | " | 3 d. | . | . | . | 0.35 |
| " | " | " | 4 m. 3 d. | . | . | . | \$ 14.35, disc't. |

$$\$ 700 - \$ 14.35 = \$ 685.65, \text{ avails, Ans.}$$

412. Interest of \$ 400 for 4 m. @ 6 % . \$ 8

| | | | | | | | |
|---|---|---|------------|---|-----|---|------------------|
| " | " | " | 12 d. | " | " | . | 0.80 |
| " | " | " | 3 m. 18 d. | " | " | . | \$ 7.20 |
| " | " | " | " | " | 1 % | . | 1.20 |
| " | " | " | " | " | 7 % | . | \$ 8.40, disc't. |

$$\$ 400 - \$ 8.40 = \$ 391.60, \text{ avails, Ans.}$$

413. Interest of \$ 450 for 60 d. . . \$ 4.50

| | | | | | | |
|---|---|---|-------|---|---|------------------------|
| " | " | " | 3 " | . | . | 0.225 |
| " | " | " | 63 d. | . | . | \$ 4.725, bank disc't. |

$$\$ 450 \div 1.01 = \$ 445.545-, \text{ present worth.}$$

$$\$ 450 - \$ 445.545 = \$ 4.455, \text{ true discount.}$$

$$\$ 4.725 - \$ 4.455 = \$ 0.27, \text{ Ans.}$$

| | | | |
|------|--------------------------------|-------|-------------------------------|
| 414. | Interest of \$7867.45 for 2 m. | @ 6 % | \$ 78.6745 |
| | " " " 1 " | " " | 39.33725 |
| | " " " 3 d. | " " | 3.93372 |
| | " " " 3 m. 3 d. | " " | <u>\$121.94547</u> |
| | " " " " " 1 % | | 20.32424 |
| | " " " " " 7 % | | <u>\$142.27, bank disc't.</u> |

$$\$7867.45 \div 1.0175 = \$7732.138-, \text{ present worth.}$$

$$\$7867.45 - \$7732.138 = \$135.31, \text{ true discount.}$$

$$\$142.27 - \$135.31 = \$6.96, \text{ Ans.}$$

$$415. \$1 - \$0.0155 = \$0.9845, \text{ avails of } \$1.$$

$$\$17865 \div 0.9845 = \$18146.27, \text{ Ans.}$$

$$416. \$1 - \$0.0105 = \$0.9895, \text{ avails of } \$1.$$

$$\$1000 \div 0.9895 = \$1010.61, \text{ Ans.}$$

$$417. \$1 - \$0.0205 = \$0.9795, \text{ avails of } \$1.$$

$$\$500 \div 0.9795 = \$510.46, \text{ Ans.}$$

$$418. \$1 - \$0.01225 = \$0.98775, \text{ avails of } \$1.$$

$$\$75755.14 \div 0.98775 = \$76694.65, \text{ Ans.}$$

$$419. \$1 - \$0.0105 = \$0.9895, \text{ avails of } \$1.$$

$$\$100 \div 0.9895 = \$101.06, \text{ Ans.}$$

$$420. \$1 - \$0.0249\frac{1}{2} = \$0.9750\frac{1}{2}, \text{ avails of } \$1.$$

$$\$300 \div 0.9750\frac{1}{2} = \$307.68, \text{ Ans.}$$

$$\$300 \div 0.9754 = \$307.566, \text{ Ans. Exact int. 123 d.}$$

$$421. \$1 - \$0.0155 = \$0.9845, \text{ avails of } \$1.$$

$$\$360 \div 0.9845 = \$365.67, \text{ Ans.}$$

$$422. \$1 - \$0.018\frac{1}{2} = \$0.981\frac{1}{2}, \text{ avails of } \$1.$$

$$\$500 \div 0.981\frac{1}{2} = \$509.21, \text{ Ans.}$$

$$423. \$1 - \$0.0205 = \$0.9795, \text{ avails of } \$1.$$

$$\$640 \div 0.9795 = \$653.39, \text{ Ans.}$$

$$424. \$1 - \$0.01225 = \$0.98775, \text{ avails of } \$1.$$

$$\$540 \div 0.98775 = \$546.70, \text{ Ans.}$$

$$425. \$1 - \$0.0045\frac{1}{2} = \$0.9954\frac{1}{2}, \text{ avails of } \$1.$$

$$\$680 \div 0.9954\frac{1}{2} = \$683.13, \text{ Ans.}$$

$$426. \frac{34000}{\cancel{68000}^{\frac{3}{4}} \times \frac{2}{3}} = \$34000, \text{ B buys.}$$

$$\$1 - \$0.01225 = \$0.98775, \text{ avails of } \$1.$$

$$\$34000 \div 0.98775 = \$34421.67, \text{ Ans.}$$

$$427. \$1 - \$0.02625 = \$0.97375, \text{ avails of } \$1.$$

$$\$973.75 \div 0.97375 = \$1000, \text{ Ans.}$$

$$428. \$1 - \$0.0205 = \$0.9795, \text{ avails of } \$1.$$

$$\$1550 \div 0.9795 = \$1582.44, \text{ Ans.}$$

$$429. \$1 - \$0.034 = \$0.966, \text{ avails of } \$1.$$

$$\$450 \div 0.966 = \$465.84, \text{ Ans.}$$

$$430. \$1 - \$0.0155 = \$0.9845, \text{ avails of } \$1.$$

$$\$100 \div 0.9845 = \$101.57, \text{ Ans.}$$

(431.)

| Due. | Amount. | Time. | Interest. |
|--|---------|-------|-----------------------|
| July 6, 1895, | \$ 300 | 5 d. | \$ 0.25 |
| Sept. 4, " | 500 | 65 " | 5.41 $\frac{1}{2}$ |
| Nov. 3, " | 750 | 125 " | 15.62 $\frac{1}{2}$ |
| Interest of \$1550 for 1 d. \$0.25 $\frac{1}{2}$) | | | \$21.29 $\frac{1}{2}$ |
| | | | 82 d. |

July 1, 1895, + 82 d. = Sept. 21, 1895, Ans.

(432.)

| Due. | Amount. | Time. | Interest. |
|-----------------|---------|------------|----------------------|
| March 12, 1896, | \$500 | 1 m. 11 d. | \$3.41 $\frac{1}{2}$ |
| April 12, " | 600 | 2 " 11 " | 7.10 |
| June 12, " | 300 | 4 " 11 " | 6.55 |
| Feb. 12, " | 1000 | 11 " | 1.83 $\frac{1}{2}$ |

Interest of \$2400 for 1 m. = \$12) \$18.90

1.575 m. = 1 m. 17 d.

February 1, 1896, + 1 m. 17 d. = March 18, 1896, Ans.

(433.)

| Due. | Amount. | Time. | Interest. |
|----------------|---------|----------|---------------------|
| Mar. 13, 1895, | \$350 | 12 d. | \$0.70 |
| July 5, " | 500 | 4 m. 4 " | 10.33 $\frac{1}{2}$ |
| Sept. 30, " | 275 | 6 " 29 " | 9.57 $\frac{1}{2}$ |

Interest of $\$1125$ for 1 m. = \$5.625) $\$20.61\frac{1}{2}$

3.66 m. = 3 m. 20 d.

March 1, 1895, + 3 m. 20 d. = June 21, 1895, Ans.

(434.)

| Due. | Amount. | Time. | Interest. |
|-----------------|---------|-----------|----------------------|
| April 21, 1895, | \$470 | 20 d. | \$1.56 $\frac{2}{3}$ |
| May 30, " | 310 | 1 m. 29 " | 3.04 $\frac{2}{3}$ |
| June 9, " | 850 | 2 " 8 " | 9.63 $\frac{1}{3}$ |

Interest of $\$1630$ for 1 m. = \$8.15) $\$14.24\frac{2}{3}$

1.748 m. = 1 m. 22 d.

April 1, 1895, + 1 m. 22 d. = May 23, 1895, Ans.

(435.)

| Amount. | Time. | Interest. |
|---------------------|-------|-------------------------------------|
| \$133 $\frac{1}{3}$ | 2 m. | \$1 $\frac{1}{3}$ |
| 266 $\frac{2}{3}$ | 3 " | 4 |
| 400 | 6 " | 12 |
| <u>\$800</u> | | <u>\17\frac{1}{3}$</u> |

The debtor ought to retain \$400 until it gains \$17 $\frac{1}{3}$. \$400 gains \$2 in one month.

$\$17\frac{1}{3} \div \$2 = 8\frac{2}{3}$. 8 m. 20 d., Ans.

(436.)

| Due. | Amount. | Time. | Interest. |
|---------------|---------|-------|-----------|
| Aug. 7, 1895, | \$500 | 0 | \$0 |
| Jan. 7, 1896, | 275 | 5 m. | 6.875 |
| April 7, " | 400 | 8 " | 16 |
| June 7, " | 825 | 10 " | 41.25 |

Interest of $\$2000$ for 1 m. = \$10) $\$64.125$

6.4 m. = 6 m. 12 d.

August 7, 1895, + 6 m. 12 d. = February 19, 1896, Ans.

NOTE. In this example reckoning from the date of the first amount due saves casting any interest on the first amount due, and makes the other times full months. (Apply the same method to Ex. 432.)

(437.)

(See Art. 382, Note 3.)

| Due. | Amount. | Time. | Interest. |
|----------------|---------|----------|------------------------|
| Mar. 18, 1895, | \$ 575 | 17 d. | \$ 1.629 $\frac{1}{2}$ |
| April 7, " | 415 | 1 m. 6 " | 2.49 |
| May 8, " | 833 | 2 " 7 " | 9.301 $\frac{1}{2}$ |
| " 19, " | 326 | 2 " 18 " | 4.238 |

Interest of \$ 2149 for 1 m. = \$ 10.745) \$ 17.659

1.64 m. = 1 m. 19 d.

March 1, 1895, + 1 m. 19 d. + 6 m. = Oct. 20, 1895, Ans.

(438.)

| Due. | Amount. | Time. | Interest. |
|----------------|---------|-------|------------------------|
| Jan. 16, 1895, | \$ 1145 | 15 d. | \$ 2.862 $\frac{1}{2}$ |
| " 27, " | 513 | 26 " | 2.223 |
| Feb. 1, " | 215 | 31 " | 1.110 $\frac{1}{2}$ |
| " 7, " | 672 | 37 " | 4.144 |

Interest of \$ 2545 for 1 m. = \$ 0.424 $\frac{1}{2}$) \$ 10.340 $\frac{1}{2}$

24 d.

January 1, 1895, + 24 d. + 45 d. = March 11, 1895, Ans.

(439.)

Sum of Dr. side, \$ 1909. Sum of Cr. side, \$ 1516.

Bal. on Dr. side, \$ 393.

| Due. | Amount. | Time. | Interest. |
|----------------|---------|----------|-----------|
| Mar. 29, 1895, | \$ 519 | 28 d. | \$ 2.422 |
| May 5, " | 423 | 2 m. 4 " | 4.512 |
| April 19, " | 967 | 1 " 18 " | 7.736 |

Interest on Dr. side from March 1, \$ 14.67

| Due. | Amount. | Time. | Interest. |
|----------------|---------|-----------|-----------|
| April 2, 1895, | \$ 357 | 1 m. 1 d. | \$ 1.8445 |
| Mar. 25, " | 738 | 24 " | 2.952 |
| May 4, " | 421 | 2 " 3 " | 4.4205 |

Interest on Cr. side from March 1, \$ 9.217

Balance of interest on Dr. side, \$ 5.453.

Interest of \$ 393 for 1 m., \$ 1.965.

\$ 5.453 \div \$ 1.965 = 2.775; 2 m. 23 d.

March 1, 1895, + 2 m. 23 d. = May 24, 1895, Ans.

(440.)

Sum of Dr. side, \$ 2863. Sum of Cr. side, \$ 2568.

Bal. on Dr. side, \$ 295.

| Due. | Amount. | Time. | Interest. |
|----------------|---------|------------|---------------------|
| June 13, 1894, | \$ 985 | 2 m. 12 d. | \$ 11.82 |
| April 19, " | 744 | 18 " | 2.232 |
| May 27, " | 659 | 1 " 26 " | 6.150 $\frac{3}{4}$ |
| May 8, " | 475 | 1 " 7 " | 2.929 $\frac{1}{8}$ |

Interest on Dr. side from April 1, \$ 23.131 $\frac{1}{8}$

| Due. | Amount. | Time. | Interest. |
|----------------|---------|-----------|------------------------|
| April 3, 1894, | \$ 769 | 2 d. | \$ 0.256 $\frac{1}{2}$ |
| May 15, " | 321 | 1 m. 14 " | 2.354 |
| April 26, " | 565 | 25 " | 2.354 $\frac{1}{8}$ |
| June 5, " | 913 | 2 " 4 " | 9.738 $\frac{3}{4}$ |

Interest on Cr. side from April 1, \$ 14.703 $\frac{1}{8}$ Balance of interest on Dr. side, \$ 8.428 $\frac{3}{4}$.

Interest of \$ 295 for 1 m., \$ 1.475.

\$ 8.428 $\frac{3}{4}$ \div \$ 1.475 = 5.714 ; 5 m. 21 d.

April 1, 1894, + 5 m. 21 d. = Sept. 22, 1894, equated time.

Sept. 22, 1894, - 5 m. 3 d. = April 19, 1894, Ans.

(441.)

Sum of Dr. side, \$ 766. Sum of Cr. side, \$ 655.

Bal. on Dr. side, \$ 111.

Interest on Dr. side

Interest on Cr. side

from April 1.

from April 1.

| | | | |
|---------------------|---|------------------|---------------------|
| \$ 85 for 1 m. 2 d. | \$ 0.453 $\frac{1}{2}$ | \$ 117 for 28 d. | \$ 0.546 |
| 55 " 1 " 7 " | 0.339 $\frac{1}{8}$ | 87 " 1 m. 4 " | 0.493 |
| 317 " 1 " 11 " | 2.166 $\frac{1}{8}$ | 113 " 1 " 13 " | 0.809 $\frac{5}{8}$ |
| 97 " 1 " 22 " | 0.840 $\frac{3}{4}$ | 210 " 1 " 16 " | 1.61 |
| 212 " 1 " 30 " | 2.12 | 128 " 1 " 20 " | 1.066 $\frac{3}{4}$ |
| | <u>\$ 5.919$\frac{1}{2}$</u> | | <u>\$ 4.5255</u> |

Balance of interest on Dr. side, \$ 1.393 $\frac{5}{8}$.

Interest of \$ 111 for 1 d., \$ 0.0185.

\$ 1.393 $\frac{5}{8}$ \div \$ 0.0185 = 75+ ; 75 d.

April 1, 1895, + 75 d. + 30 d. = July 15, 1895, Ans.

$$442. \$7350 \div 0.98 = \$7500, \text{ par value of bonds.}$$

$$\$7500 \times 0.04 = \$300, \text{ Ans.}$$

$$443. \$900 \div 0.045 = \$20000, \text{ par value of bonds.}$$

$$\$20000 \times 1.03 = \$20600, \text{ Ans.}$$

$$444. \$5 \div \$104.25 = 0.04\frac{1}{2}\frac{1}{2}, \text{ or } 4\frac{1}{2}\frac{1}{2}\%.$$

$$445. (\$800 \div 0.05) \times 1.04 = \$16640, \text{ Ans.}$$

$$446. \$1000 \div 0.06 = \$16666\frac{2}{3}. \text{ Hence I must have 167 bonds.}$$

$$\$103.50 \times 167 = \$17284.50, \text{ Ans.}$$

$$447. \begin{array}{l} \$5 \div \$104.25 = 0.04796+, \\ \$4 \div \$99.50 = 0.0402+, \end{array} \left. \vphantom{\begin{array}{l} \$5 \div \$104.25 \\ \$4 \div \$99.50 \end{array}} \right\} \begin{array}{l} 5\text{'s by more than} \\ 1\frac{7}{10}\%, \text{ Ans.} \end{array}$$

$$448. \text{ First interest } \$3.50$$

$$\text{Interest on } \$3.50 \text{ for 6 m. @ } 7\% \text{ . . . } 0.1225$$

$$\text{Second interest } 3.50$$

$$\text{Amount at the end of the year } \$7.1225$$

$$\$7.1225 \div \$109.50 = 0.06\frac{1}{2}\frac{1}{2}; 6\frac{1}{2}\frac{1}{2}\%, \text{ Ans.}$$

$$449. \$84.50 \times 32 = \$2704, \text{ Ans.}$$

$$450. \begin{array}{l} \$6 \div \$90 = 0.06\frac{2}{3}, \\ \$8 \div \$130 = 0.06\frac{1}{3}, \end{array} \left. \vphantom{\begin{array}{l} \$6 \div \$90 \\ \$8 \div \$130 \end{array}} \right\} 6\text{'s by } \frac{2}{3}\%, \text{ Ans.}$$

451. I shall receive on each \$100 of the Boston 6's \$12 interest, and on redemption \$100, or a total of \$112; and on each \$100 of the Boston and Maine 7's \$14 interest, and on redemption \$100, or a total \$114.

As the Boston 6's cost 102, I shall gain \$10 on each \$100; and as the Boston and Maine 7's cost 108, I shall gain \$6 on each \$100. Hence, Boston 6's are better by \$4 on each \$100 of bonds, Ans.

(This does not include the interest on the excess of investment in the Boston and Maine, or the interest that might be received on the \$6 and \$7 interest received at the end of the first year.)

$$452. \text{ First interest } \$3$$

$$\text{Interest on } \$3 \text{ for 6 m. } 0.09$$

$$\text{Second interest } 3$$

$$\text{Amount at the end of the year } \$6.09$$

$$\$6.09 \div 0.06 = \$101.50; 1\frac{1}{2}\% \text{ premium, Ans.}$$

$$453. \$1500 \div \$6 = 250, \text{ no. of bonds.}$$

$$\$95.50 \times 250 = \$23875, \text{ Ans.}$$

$$454. \$5 \div \$90 = 0.05\bar{5}. \quad 5\bar{5} \% , \text{ Ans.}$$

$$455. \$4.50 \times 49 = \$220.50, \text{ income from the } 4\frac{1}{2}\text{'s.}$$

$$(\$104 \times 49) \div \$98 = 52, \text{ no. of 4's bought.}$$

$$\$4 \times 52 = \$208, \text{ income from the 4's.}$$

$$\$220.50 - \$208 = \$12.50 \text{ less, Ans.}$$

$$456. \begin{array}{r} 3 \\ 7 \\ 10 \\ \hline 20 \end{array} \quad \begin{array}{l} \$620 \times \frac{3}{20} = \$93, \\ \$620 \times \frac{7}{20} = \$217, \\ \$620 \times \frac{10}{20} = \$310, \end{array} \left. \vphantom{\begin{array}{r} 3 \\ 7 \\ 10 \\ \hline 20 \end{array}} \right\} \text{Ans.}$$

$$457. \begin{array}{l} 6 \\ 10 \\ 14 \end{array} \left. \vphantom{\begin{array}{l} 6 \\ 10 \\ 14 \end{array}} \right\} \text{or } \begin{array}{l} 3 \\ 5 \\ 7 \\ \hline 15 \end{array} \quad \begin{array}{l} \$37680 \times \frac{3}{15} = \$7536, \text{ C's stock.} \\ \$17584 \times \frac{5}{15} = \$5861.33\bar{3}, \text{ A's,} \\ \$17584 \times \frac{7}{15} = \$8205.86\bar{6}, \text{ B's,} \\ \$17584 \times \frac{10}{15} = \$11722.66\bar{6}, \text{ C's,} \end{array} \left. \vphantom{\begin{array}{l} 3 \\ 5 \\ 7 \\ \hline 15 \end{array}} \right\} \text{Ans.}$$

$$458. \frac{\$4000}{16800} = \frac{1}{4}, \text{ C's share of gain; therefore C must have had } \frac{1}{4} \text{ the stock, or } \$10000, \text{ C's stock, 1st Ans.}$$

$$\begin{array}{l} 4000 \\ 6000 \end{array} \left. \vphantom{\begin{array}{l} 4000 \\ 6000 \end{array}} \right\} \text{or } \begin{array}{l} 4 \\ 6 \\ \hline 10 \end{array} \quad \begin{array}{l} \$840 \times 0.4 = \$336, \text{ A's gain,} \\ \$840 \times 0.6 = \$504, \text{ B's gain,} \end{array} \left. \vphantom{\begin{array}{l} 4 \\ 6 \\ \hline 10 \end{array}} \right\} \text{2d Ans.}$$

$$459. \begin{array}{l} 60 \\ 90 \\ 150 \\ 225 \end{array} \left. \vphantom{\begin{array}{l} 60 \\ 90 \\ 150 \\ 225 \end{array}} \right\} \text{or } \begin{array}{l} 4 \\ 6 \\ 10 \\ 15 \\ \hline 35 \end{array} \quad \begin{array}{l} 70 \times \frac{4}{35} = 8, \\ 70 \times \frac{6}{35} = 12, \\ 70 \times \frac{10}{35} = 20, \\ 70 \times \frac{15}{35} = 30, \end{array} \left. \vphantom{\begin{array}{l} 4 \\ 6 \\ 10 \\ 15 \\ \hline 35 \end{array}} \right\} \text{Ans.}$$

$$460. \begin{array}{l} 3 \\ 5 \\ 7 \\ \hline 15 \end{array} \quad \begin{array}{l} (\$1440 + \$1080) \times \frac{1}{15} = \$156, \text{ H's,} \\ (\$1440 + \$1080) \times \frac{5}{15} = \$840, \text{ P's,} \\ (\$1440 + \$1080) \times \frac{7}{15} = \$1176, \text{ S's,} \end{array} \left. \vphantom{\begin{array}{l} 3 \\ 5 \\ 7 \\ \hline 15 \end{array}} \right\} \text{Ans.}$$

$$461. \$7980 \times 0.90 = \$7182, \text{ to divide equally.}$$

$$\$7182 \times \frac{1}{3} + \$798 = \$4389, \text{ A's, } \left. \vphantom{\begin{array}{l} 1 \\ 3 \end{array}} \right\} \text{Ans.}$$

$$\$7182 \times \frac{2}{3} = \$4788, \text{ B's, } \left. \vphantom{\begin{array}{l} 2 \\ 3 \end{array}} \right\}$$

$$462. \left. \begin{array}{r} 110 \\ 100 \end{array} \right\} \text{ or } \left\{ \begin{array}{r} 11 \\ 10 \\ \hline 21 \end{array} \right. \quad \begin{array}{l} \$7980 \times \frac{11}{21} = \$4180, \text{ A's,} \\ \$7980 \times \frac{10}{21} = \$3800, \text{ B's,} \end{array} \left. \vphantom{\begin{array}{r} 110 \\ 100 \end{array}} \right\} \text{ Ans.}$$

$$463. \left. \begin{array}{r} 100 \\ 90 \end{array} \right\} \text{ or } \left\{ \begin{array}{r} 10 \\ 9 \\ \hline 19 \end{array} \right. \quad \begin{array}{l} \$7980 \times \frac{10}{19} = \$4200, \text{ A's,} \\ \$7980 \times \frac{9}{19} = \$3780, \text{ B's,} \end{array} \left. \vphantom{\begin{array}{r} 100 \\ 90 \end{array}} \right\} \text{ Ans.}$$

$$464. \frac{1}{2}, \frac{3}{5}, \frac{2}{3}, \text{ or } \frac{15}{30}, \frac{36}{30}, \frac{18}{30}.$$

$$\left. \begin{array}{r} 15 \\ 20 \\ 18 \\ \hline 53 \end{array} \right\} \begin{array}{l} \$299 \times \frac{15}{53} = \$84.621\frac{1}{3}, \\ \$299 \times \frac{20}{53} = \$112.83\frac{1}{3}, \\ \$299 \times \frac{18}{53} = \$101.54\frac{2}{3}, \end{array} \left. \vphantom{\begin{array}{r} 15 \\ 20 \\ 18 \\ \hline 53 \end{array}} \right\} \text{ Ans.}$$

$$465. \quad \begin{array}{rcl} & \$20, & \text{A paid.} \\ & \$20 \times 1.40 = \$28, & \text{B "} \\ (\$20 + \$28) \times 0.84\frac{1}{2} = \$40.56, & \text{C "} \end{array}$$

$$\left. \begin{array}{r} 2000 \\ 2800 \\ 4056 \\ \hline 1107 \end{array} \right\} \text{ or } \left\{ \begin{array}{r} 250 \\ 350 \\ 507 \\ \hline 1107 \end{array} \right. \quad \begin{array}{l} \frac{250}{1107}, \text{ A's,} \\ \frac{350}{1107}, \text{ B's,} \\ \frac{507}{1107}, \text{ C's,} \end{array} \left. \vphantom{\begin{array}{r} 2000 \\ 2800 \\ 4056 \\ \hline 1107 \end{array}} \right\} \text{ Ans.}$$

(466.)

$$\left. \begin{array}{r} 3626.25 \\ 6527.25 \end{array} \right\} \text{ or } \left\{ \begin{array}{r} 5 \\ 9 \\ \hline 14 \end{array} \right. \quad \begin{array}{l} \$2626.68 \times \frac{5}{14} = \$938.10, \text{ A's,} \\ \$2626.68 \times \frac{9}{14} = \$1688.58, \text{ B's,} \end{array} \left. \vphantom{\begin{array}{r} 3626.25 \\ 6527.25 \end{array}} \right\} \text{ Ans.}$$

(467.)

$$\left. \begin{array}{r} 8 \\ 7 \\ 6 \\ \frac{1}{2} \end{array} \right\} \text{ or } \left\{ \begin{array}{r} 16 \\ 14 \\ 12 \\ \hline 43 \end{array} \right. \quad \begin{array}{l} \$8600 \times \frac{16}{43} = \$3200, \\ \$8600 \times \frac{14}{43} = \$2800, \\ \$8600 \times \frac{12}{43} = \$2400, \\ \$8600 \times \frac{1}{43} = \$200, \end{array} \left. \vphantom{\begin{array}{r} 8 \\ 7 \\ 6 \\ \frac{1}{2} \end{array}} \right\} \text{ Ans.}$$

(468.)

$$\begin{array}{rcl} 500 \times 18 = 900 & \$818.50 \times \frac{900}{1637} = \$450, & \text{A's,} \\ 380 \times 13 = 494 & \$818.50 \times \frac{494}{1637} = \$247, & \text{B's,} \\ 270 \times 9 = 243 & \$818.50 \times \frac{243}{1637} = \$121.50, & \text{C's,} \end{array} \left. \vphantom{\begin{array}{r} 900 \\ 494 \\ 243 \end{array}} \right\} \text{ Ans.}$$

1637

(469.)

$$\left. \begin{array}{l} 4 \times 6 = 24 \\ 3 \times 10 = 30 \\ 2 \times 12 = 24 \end{array} \right\} \text{or } \left\{ \begin{array}{l} 4 \\ 5 \\ 4 \end{array} \right. \quad \begin{array}{l} \$1560 \times \frac{1}{13} = \$480, \text{ A's,} \\ \$1560 \times \frac{1}{13} = \$600, \text{ B's,} \\ \$1560 \times \frac{1}{13} = \$480, \text{ C's,} \end{array} \right\} \text{Ans.}$$

(470.)

$$\left. \begin{array}{l} 5000 \times 12 \\ 7000 \times 12 \\ 10000 \times 12 \\ 4000 \times 8 \end{array} \right\} \text{or } \left\{ \begin{array}{l} 15 \\ 21 \\ 30 \\ 8 \end{array} \right. \quad \begin{array}{l} \$8000 \times \frac{1}{4} = \$1621.62\frac{2}{3}, \text{ A's,} \\ \$8000 \times \frac{1}{4} = \$2270.27\frac{1}{3}, \text{ B's,} \\ \$8000 \times \frac{1}{4} = \$3243.24\frac{1}{3}, \text{ C's,} \\ \$8000 \times \frac{1}{4} = \$864.86\frac{1}{3}, \text{ D's,} \end{array} \right\} \text{Ans.}$$

(471.)

$$\left. \begin{array}{l} 650 \times 12 \\ 500 \times 9 \\ 450 \times 6 \end{array} \right\} \text{or } \left\{ \begin{array}{l} 26 \\ 15 \\ 9 \end{array} \right. \quad \begin{array}{l} \$375 \times \frac{1}{2} = \$195, \text{ A's,} \\ \$375 \times \frac{1}{3} = \$112.50, \text{ B's,} \\ \$375 \times \frac{1}{5} = \$67.50, \text{ C's,} \end{array} \right\} \text{Ans.}$$

$$472. \quad (\$6000 \times 12) \div 9 = \$8000, \text{ Ans.}$$

(473.)

$$\left. \begin{array}{l} 1300 \times 12 \\ 1000 \times 10 \\ 900 \times 5 \end{array} \right\} \text{or } \left\{ \begin{array}{l} 156 \\ 100 \\ 45 \end{array} \right. \quad \begin{array}{l} \$750 \times \frac{1}{2} = \$388.70\frac{1}{2}, \text{ A's,} \\ \$750 \times \frac{1}{2} = \$249.16\frac{2}{3}, \text{ B's,} \\ \$750 \times \frac{1}{2} = \$112.12\frac{1}{2}, \text{ C's,} \end{array} \right\} \text{Ans.}$$

(474.)

$$\begin{aligned} 2000 \times 12 &= 24000 \\ 1000 \times 8 &= 8000 \\ \hline 32000, &\text{ Ames.} \\ 2000 \times 12 &= 24000, \text{ Howe.} \end{aligned}$$

$$\left. \begin{array}{l} 32000 \\ 24000 \end{array} \right\} \text{or } \left\{ \begin{array}{l} 4 \\ 3 \end{array} \right. \quad \begin{array}{l} \$2800 \times \frac{1}{4} = \$1600, \text{ Ames,} \\ \$2800 \times \frac{1}{4} = \$1200, \text{ Howe,} \end{array} \right\} \text{Ans.}$$

(475.)

$$\left. \begin{array}{l} 25 \times 24 \times 9 \\ 20 \times 25 \times 10 \\ 30 \times 20 \times 12 \end{array} \right\} \text{or } \left\{ \begin{array}{l} 27 \\ 25 \\ 36 \end{array} \right. \quad \begin{array}{l} \$7832 \times \frac{1}{27} = \$2403, \text{ first,} \\ \$7832 \times \frac{1}{25} = \$2225, \text{ second,} \\ \$7832 \times \frac{1}{36} = \$3204, \text{ third,} \end{array} \right\} \text{Ans.}$$

(476.)

$$\left. \begin{array}{l} 60 \times 20 \\ 20 \times 40 \\ 30 \times 30 \end{array} \right\} \text{ or } \left\{ \begin{array}{l} 12 \\ 8 \\ 9 \\ \hline 29 \end{array} \right. \quad \left. \begin{array}{l} \$140 \times \frac{1}{2} = \$57.93\frac{3}{4}, \text{ A,} \\ \$140 \times \frac{2}{3} = \$38.62\frac{2}{3}, \text{ B,} \\ \$140 \times \frac{3}{4} = \$43.44\frac{3}{4}, \text{ C,} \end{array} \right\} \text{ Ans.}$$

(477.)

$$\left. \begin{array}{l} 2000 \times 4 = 8000, \\ 3000 \times 5 = 15000, \\ 2500 \times 3 = 7500, \\ \hline 30500 \end{array} \right\} \text{ A's.} \quad \left. \begin{array}{l} 2000 \times 5 = 10000, \\ 3500 \times 4 = 14000, \\ 4500 \times 3 = 13500, \\ \hline 37500 \end{array} \right\} \text{ B's.}$$

$$\left. \begin{array}{l} 2000 \times 5 = 10000, \\ 1500 \times 4 = 6000, \\ 2500 \times 3 = 7500, \\ \hline 23500 \end{array} \right\} \text{ C's.}$$

$$\left. \begin{array}{l} 30500 \\ 37500 \\ 23500 \end{array} \right\} \text{ or } \left\{ \begin{array}{l} 61 \\ 75 \\ 47 \\ \hline 183 \end{array} \right. \quad \left. \begin{array}{l} \$3000 \times \frac{1}{3} = \$1000, \text{ A's,} \\ \$3000 \times \frac{2}{3} = \$1229.50\frac{2}{3}, \text{ B's,} \\ \$3000 \times \frac{1}{3} = \$770.49\frac{1}{3}, \text{ C's,} \end{array} \right\} \text{ Ans.}$$

(478.)

A's 10 horses = 24 cows.

C's 15 oxen = 20 cows.

$$\left. \begin{array}{l} 24 \times 9 \\ 60 \times 12 \\ 20 \times 8 \end{array} \right\} \text{ or } \left\{ \begin{array}{l} 27 \\ 90 \\ 20 \\ \hline 137 \end{array} \right. \quad \left. \begin{array}{l} \$106 \times \frac{2}{3} = \$20.89\frac{1}{3}, \text{ A,} \\ \$106 \times \frac{3}{4} = \$69.63\frac{3}{4}, \text{ B,} \\ \$106 \times \frac{1}{2} = \$15.47\frac{1}{2}, \text{ C,} \end{array} \right\} \text{ Ans.}$$

(479.)

$$\left. \begin{array}{l} 4000 \times 3 = 12000, \\ 6000 \times 6 = 36000, \\ 4700 \times 3 = 14100, \\ \hline 62100 \end{array} \right\} \text{ A's.} \quad \left. \begin{array}{l} 6000 \times 5 = 30000, \\ 7000 \times 4 = 28000, \\ 5700 \times 3 = 17100, \\ \hline 75100 \end{array} \right\} \text{ B's.}$$

$$\left. \begin{array}{l} 62100 \\ 75100 \end{array} \right\} \quad \left. \begin{array}{l} \$7000 \times \frac{1}{3} = \$3168.36\frac{2}{3}, \text{ A,} \\ \$7000 \times \frac{2}{3} = \$3831.63\frac{1}{3}, \text{ B,} \end{array} \right\} \text{ Ans.}$$

1372

(480.)

$$\begin{array}{r} 5000 \times 5 \\ 3000 \times 3 \\ 6000 \times 2 \end{array} \left. \vphantom{\begin{array}{r} 5000 \\ 3000 \\ 6000 \end{array}} \right\} \text{or } \left\{ \begin{array}{r} 25 \\ 9 \\ 12 \\ \hline 46 \end{array} \right.$$

$$\left. \begin{array}{l} \$5000 + \$10560 \times \frac{2}{3} = \$10739.13\frac{1}{3}, \text{ A's,} \\ \$3000 + \$10560 \times \frac{3}{4} = \$5066.08\frac{1}{3}, \text{ B's,} \\ \$6000 + \$10560 \times \frac{5}{2} = \$8754.78\frac{2}{3}, \text{ C's,} \end{array} \right\} \text{Ans.}$$

(481.)

$$\$720 \div 8 = \$90, \text{ A's gain a month.}$$

$$\$540 \div 9 = \$60, \text{ B's " "}$$

$$\$980 \div 10 = \$98, \text{ C's " "}$$

$$\left. \begin{array}{l} 90 \\ 60 \\ 98 \end{array} \right\} \text{or } \left\{ \begin{array}{l} 45 \\ 30 \\ 49 \end{array} \right. \left\{ \begin{array}{l} \$8610 \times \frac{1}{12} = \$3124.59\frac{3}{4}, \text{ A,} \\ \$8610 \times \frac{1}{3} = \$2870, \text{ B,} \\ \$8610 \times \frac{1}{2} = \$4305, \text{ C,} \end{array} \right\} \text{Ans.}$$

$$482. 22\frac{1}{2}, \text{ Ans.}$$

$$488. 1\frac{1}{3}, \text{ Ans.}$$

$$483. 22\frac{1}{2}, \text{ Ans.}$$

$$489. \frac{3}{4}, \text{ Ans.}$$

$$484. 300, \text{ Ans.}$$

$$490. \frac{3}{4}, \text{ Ans.}$$

$$485. 24, \text{ Ans.}$$

$$491. \frac{13}{28} \times \frac{4}{13} = \frac{1}{7}, \text{ Ans.}$$

$$486. \text{ Any two factors whose product is 64, Ans.}$$

$$492. \frac{1}{2} \times \frac{5}{8} \times \frac{5}{12} = \frac{25}{192}, \text{ Ans.}$$

$$487. \frac{1}{24}, \text{ Ans.}$$

$$493. \sqrt{16 \times 64} = 4 \times 8 = 32, \text{ Ans.}$$

$$494. \sqrt{12 \times 0.75} = 3, \text{ Ans.}$$

$$495. 3 : 30 = 30 : 300, \text{ Ans.}$$

$$496. \$250 : \$147 = 18 \text{ yd.} : 10\frac{3}{5}, \text{ Ans.}$$

$$497. 150 \text{ ft.} : 6 \text{ ft.} = 275 \text{ ft.} : 11 \text{ ft., Ans.}$$

498. It would last 800 men 40 days.

$$\begin{array}{c} 3 \\ 600 \end{array} \text{ men} : \begin{array}{c} 4 \\ 800 \end{array} \text{ men} = 40 \text{ d.} : 53\frac{1}{3} \text{ d., Ans.}$$

$$499. \begin{array}{c} 8 \\ 128 \end{array} : \begin{array}{c} 14 \\ 112 \end{array} = \$16 : \$14, \text{ Ans.}$$

$$500. \begin{array}{c} 3 \\ 6 \text{ ft.} \end{array} : 173 \text{ ft.} = \begin{array}{c} 2 \\ 4 \end{array} \text{ ft.} : 115\frac{1}{2} \text{ ft., Ans.}$$

$$501. \$7.50 : \$6 = 8 \text{ oz.} : 6\frac{3}{4} \text{ oz., Ans.}$$

502. $4 : 5 = 6 : 7\frac{1}{2}$; that is, A's 6 steps = $7\frac{1}{2}$ of B's steps; therefore A is the faster walker, gaining in every 6 steps he takes a distance equal to half of one of B's steps, Ans.

$$503. 5 \text{ d.} : 33 \text{ d.} = 73 \text{ ft.} : 481\frac{1}{2} \text{ ft., Ans.}$$

$$504. \begin{array}{c} \$10 : 48 \\ \$90 : 15 \end{array} \left. \vphantom{\begin{array}{c} \$10 : 48 \\ \$90 : 15 \end{array}} \right\} = \$30 : \$60, \text{ Ans.}$$

$$505. \begin{array}{c} 4 : 6 \\ 520 : 28 \end{array} \left. \vphantom{\begin{array}{c} 4 : 6 \\ 520 : 28 \end{array}} \right\} = \begin{array}{c} 6 \\ 24 \end{array} \text{ rd.} : 14\frac{3}{4} \text{ rd., Ans.}$$

$$506. \begin{array}{c} 9 : 763 \\ 212 : 7 \end{array} \left. \vphantom{\begin{array}{c} 9 : 763 \\ 212 : 7 \end{array}} \right\} = \begin{array}{c} 7 \\ 42 \end{array} : 171\frac{1}{2}, \text{ Ans.}$$

$$507. \begin{array}{c} 48 : 520 \\ \frac{11}{2} : \frac{5}{2} \\ 9 : 5 \\ 4 : 2 \end{array} \left. \vphantom{\begin{array}{c} 48 : 520 \\ \frac{11}{2} : \frac{5}{2} \\ 9 : 5 \\ 4 : 2 \end{array}} \right\} = \begin{array}{c} 165 \\ 1485 \\ 16835 \end{array} \text{ lb.} : 20625 \text{ lb., Ans.}$$

$$508. \begin{array}{c} 30 : 24 \\ 8 : 10 \\ 1 : 6 \end{array} \left. \vphantom{\begin{array}{c} 30 : 24 \\ 8 : 10 \\ 1 : 6 \end{array}} \right\} = 25 : 150, \text{ Ans.}$$

$$509. \begin{array}{c} 5400 : 4360 \\ 9 : 8 \\ 7 : 6 \end{array} \left. \vphantom{\begin{array}{c} 5400 : 4360 \\ 9 : 8 \\ 7 : 6 \end{array}} \right\} = \begin{array}{c} 3 \\ 21 \end{array} : \$14.40, \text{ Ans.}$$

$$510. \quad \left. \begin{array}{l} 3 \ 15 : 2 \ 6 \\ 4 \ 80 : 5 \ 200 \\ 10 : 9 \\ 9 : 5 \\ 10 : 9 \end{array} \right\} = 100 : 45, \text{ Ans.}$$

$$511. \quad \left. \begin{array}{l} 6 : 9 \\ 15 : 3 \ 18 \end{array} \right\} = \$ 135 : \$ 243, \text{ Ans.}$$

$$512. \quad \left. \begin{array}{l} 18 : 8 \\ \frac{23}{6} : \frac{9}{2} \\ 3 \ 135 : 25 \ 450 \end{array} \right\} = \frac{5}{2} \text{ ft.} : 8\frac{1}{2} \text{ ft.}, \text{ Ans.}$$

$$513. \quad \left. \begin{array}{l} 7 \ 28 : 6 \\ 3 \ 12 : 3 \ 9 \\ 20 : 400 \\ 6 : 4 \\ 4 : 8 \end{array} \right\} = 16 : 68\frac{4}{5}, \text{ Ans.}$$

$$514. \quad \left. \begin{array}{l} 7 : 8 \\ 16 : 12 \end{array} \right\} = 14 : 12, \text{ Ans.}$$

$$515. \quad \left. \begin{array}{l} 10 : 36 \\ 12 : 10 \\ 100 : 75 \\ 4 : 5 \\ 3 : 4 \end{array} \right\} = 20 : 75, \text{ Ans.}$$

$$516. \quad \left. \begin{array}{l} 8000 : 5000 \\ 20 : 15 \end{array} \right\} = 20 \text{ oz.} : 9\frac{3}{4} \text{ oz.}, \text{ Ans.}$$

$$517. \quad \left. \begin{array}{l} 3 \ 75 : 2 \ 50 \\ 7 \ 14 : 12 \ 24 \end{array} \right\} = \frac{3}{2} \text{ m.} : 5\frac{1}{2} \text{ m.}, \text{ Ans.}$$

$$518. \quad \left. \begin{array}{r} 25 : 125 \quad \cancel{750} \\ 4 : \quad \quad \frac{9}{2} \\ 8 : \quad \quad \frac{5}{2} \\ 2 \cancel{14} : \quad \quad \frac{7}{2} \\ 9 : \quad \quad \frac{8}{2} \end{array} \right\} = 5 : 125, \text{ Ans.}$$

$$519. \quad \left. \begin{array}{r} 2 : 7 \\ 17 : 40 \\ 50 : 3 \quad \cancel{51} \\ 4 : \quad \frac{5}{2} \end{array} \right\} = 2 : 21, \text{ Ans.}$$

$$520. \quad \left. \begin{array}{r} 30 : 480 \\ 16 : 18 \end{array} \right\} = 8 : 144, \text{ Ans.}$$

$$521. \quad \left. \begin{array}{r} 13 : 16 \\ 4 : 9 \end{array} \right\} = \$ \overset{9}{\cancel{468}} : \$ 1296, \text{ Ans.}$$

$$522. \quad \left. \begin{array}{r} 30 : 6 \\ 80 : 500 \\ 6 : 8 \\ 3 : 5 \quad \frac{15}{4} \\ 7 : 10 \end{array} \right\} = \overset{4}{84} : 250, \text{ Ans.}$$

$$523. \quad \left. \begin{array}{r} 98 : 6 \quad \cancel{588} \\ 2 : \quad \quad \frac{8}{2} \\ 1 : \quad \quad \frac{3}{2} \\ 20 : \quad \frac{5}{2} \\ 9 : 2 \quad \frac{8}{2} \end{array} \right\} = 4 : 12, \text{ Ans.}$$

$$524. \quad \left. \begin{array}{r} 2 \quad \cancel{60} : \quad \quad \frac{30}{2} \\ 90 : 5 \quad \cancel{15} \quad \frac{120}{2} \\ 8 : \quad \quad \frac{10}{2} \\ 2 \quad 4 : \quad \quad \frac{3}{2} \\ 8 : \quad \quad 5 \quad \frac{10}{2} \end{array} \right\} = 16 : 12\frac{1}{2}, \text{ Ans.}$$

$$525. \quad \left. \begin{array}{l} 2 \text{ } 6 \text{ } 18 : 5 \text{ } 15 \\ 2 \text{ } 512 : 256 \\ 1 : 4 \end{array} \right\} = 5 \text{ } 15 : 25, \text{ Ans.}$$

$$526. \quad \left. \begin{array}{l} 8 : 7 \text{ } 28 \\ 5 : \frac{13}{2} \\ 4 : \frac{7}{2} \\ 3 : \frac{5}{2} \end{array} \right\} = \frac{120}{960} \text{ lb.} : 3185 \text{ lb., Ans.}$$

$$527. \quad \left. \begin{array}{l} 1 : 5 \\ 1 : 4 \end{array} \right\} = 25 : 500, \text{ Ans.}$$

$$528. \quad \left. \begin{array}{l} 60 \times 72 : 268\frac{1}{2} \times 8 \\ 1 : 3 \text{ } 180 \end{array} \right\} = 1 \text{ in.} : 89\frac{1}{2} \text{ in., or } 7 \text{ ft. } 5.6 \text{ in., Ans.}$$

$$529. \quad \left. \begin{array}{l} 20 : 7 \\ \frac{3}{2} : \frac{5}{2} \\ 4 \text{ } 28 : 29 \text{ } 116 \end{array} \right\} = 2 \text{ ft.} : 4\frac{1}{2} \text{ ft., Ans.}$$

$$530. \quad \left. \begin{array}{l} 8 : 3 \text{ } 6 \\ 2 \text{ } 8 : 5 \text{ } 10 \end{array} \right\} = \$24 : \$22.50, \text{ Ans.}$$

$$531. \quad \left. \begin{array}{l} 2 \text{ } 18 : 5 \text{ } 15 \\ 4 : 8 \\ 2 : 1 \\ 10 : 19 \\ 2 : 11 \text{ } 33 \end{array} \right\} = \$1240 : \$32395, \text{ Ans.}$$

$$532. \quad \left. \begin{array}{l} 5 \text{ } 25 : 18 \\ 7 \text{ } 140 : 220 \\ 6 : 5 \\ 3 : 4 \\ 12 : 3 \text{ } 9 \end{array} \right\} = 2 \text{ } 10 : 9\frac{1}{2}, \text{ Ans.}$$

$$533. \quad \left. \begin{array}{l} 8 : 6 \\ 5 \ 15 : 20 \\ 4 : 8 \\ 5 : 8 \\ 8 : 12 \end{array} \right\} = 3 : 14\frac{2}{3}, \text{ Ans.}$$

$$534. \quad \left. \begin{array}{l} 2.5 : 7.3 \ 36.5 \\ 1.4 : 3 \ 1.5 \end{array} \right\} = \$ 3.375 : \$ 52.79+, \text{ Ans.}$$

$$535. \quad \left. \begin{array}{l} 11 : 7 \\ 0.3 \ 25.5 \ 280.5 : 2 \ 170 \end{array} \right\} = 121 : 46\frac{2}{3}, \text{ Ans.}$$

$$536. \quad \left. \begin{array}{l} 2 \ 26 : 13 \\ 3 : 5 \\ 5 : 7 \end{array} \right\} = \frac{14}{3} : 4\frac{1}{2}, \text{ Ans.}$$

$$537. \quad \left. \begin{array}{l} 1 : 3 \ 6 \\ 2 \ 10 : 9 \end{array} \right\} = \frac{3}{15} : 81.$$

It will take 1 man 81 days; hence, it will take 9 men 9 days.
9, Ans.

$$538. \quad \left. \begin{array}{l} 5 : 12 \\ 2 \\ 5 : 3 \end{array} \right\} = \frac{106}{530} : \$ 1526.40, \text{ Ans.}$$

He spends $\frac{2}{3}$ of what he earns; that is, he saves $\frac{1}{3}$ of what he earns. Hence, the second ratio, 5 : 3.

$$539. \quad \left. \begin{array}{l} 12\frac{1}{2} \\ 0.000000343, \end{array} \right\} \text{ Ans.} \quad 540. \quad \left. \begin{array}{l} 625, \\ 0.0625, \\ 0.000000000625, \end{array} \right\} \text{ Ans.}$$

$$541. \quad \left. \begin{array}{l} 27000, \\ 27, \\ 0.027, \\ 0.000027, \end{array} \right\} \text{ Ans.}$$

$$542. \quad 10 \times 6^3 : 10 \times 6 \times 3 = 216 : 18 = 12 : 1, \text{ Ans.}$$

$$543. \left. \begin{array}{l} 0.63245+, \\ 0.2, \\ 1.118+, \end{array} \right\} \text{Ans.}$$

$$545. 11.61+, \text{ Ans.}$$

$$546. \left. \begin{array}{l} 0.94868+, \\ 0.3, \end{array} \right\} \text{Ans.}$$

$$544. 21.275+, \text{ Ans.}$$

$$547. 27.34, \text{ Ans.}$$

$$548. \sqrt{35} : 10 \sqrt{3.5} = 5.916+ : 18.7+.$$

Or, by cancelling the $\sqrt{35}$,

$$\sqrt{35} : 10 \sqrt{3.5} = 1 : 10 \sqrt{0.1} = 1 : 3.162+.$$

Hence, the latter is more than three times the former, Ans.

$$549. \sqrt{\frac{49}{9}} = \frac{7}{3}; \quad \sqrt{1014049} = 1007$$

$$1007 \times \frac{7}{3} = 2349\frac{2}{3}, \text{ Ans.}$$

$$550. \left. \begin{array}{l} 0.18708+, \\ 1.58113+, \\ 1.5, \\ 0.81649+, \\ 1\frac{1}{3}, \end{array} \right\} \text{Ans.}$$

$$559. 21.04, \text{ Ans.}$$

$$560. 27.08, \text{ Ans.}$$

$$561. 0.7071+, \text{ Ans.}$$

$$562. 8.888+, \text{ Ans.}$$

$$551. 36, \text{ Ans.}$$

$$563. 20.4205+, \text{ Ans.}$$

$$552. 327, \text{ Ans.}$$

$$564. 16.941+, \text{ Ans.}$$

$$553. 14.03, \text{ Ans.}$$

$$565. 1.76068+, \text{ Ans.}$$

$$554. 8.87, \text{ Ans.}$$

$$566. 5.0388+, \text{ Ans.}$$

$$555. 7.02, \text{ Ans.}$$

$$567. 23.0542+.$$

$$556. 10.24, \text{ Ans.}$$

$$568. 13.9642+.$$

$$557. 27.34, \text{ Ans.}$$

$$569. 90.4157+.$$

$$558. 2.047, \text{ Ans.}$$

$$570. 6.7216+.$$

$$571. (81 + 25) \times 2 \text{ rd.} - \sqrt{(81 \times 25)} \times 4 \text{ rd.} = 32 \text{ rd.} = 528 \text{ ft., Ans.}$$

$$572. 2016 = 2 \times 2 \times 2 \times 2 \times 2 \times 3 \times 3 \times 7.$$

To be a perfect square, the different factors must each appear an even number of times; hence there must be another 2 and another 7. $7 \times 2 = 14$, Ans.

573. So by omitting one 2 and the 7 (see factors in Ex. 572), the different factors will appear each an even number of times:

$$2 \times 7 = 14, \text{ Ans.}$$

$$574. 792 = 2 \times 2 \times 2 \times 3 \times 3 \times 11.$$

To be a perfect cube the different factors must each appear 3 (or some multiple of 3) times: $3 \times 11 \times 11 = 363$, Ans.

$$575. 13, \text{ Ans.}$$

$$585. 3\frac{3}{4}, \text{ Ans.}$$

$$576. 28, \text{ Ans.}$$

$$586. 32.57+, \text{ Ans.}$$

$$577. 147, \text{ Ans.}$$

$$587. 21.07+, \text{ Ans.}$$

$$578. 236, \text{ Ans.}$$

$$588. 3.708+, \text{ Ans.}$$

$$579. 90.1, \text{ Ans.}$$

$$589. 42.702+, \text{ Ans.}$$

$$580. 1.05, \text{ Ans.}$$

$$590. 0.053+, \text{ Ans.}$$

$$581. 699, \text{ Ans.}$$

$$591. 18.27+, \text{ Ans.}$$

$$582. 9.08, \text{ Ans.}$$

$$592. 9.089+, \text{ Ans.}$$

$$583. 34.06, \text{ Ans.}$$

$$593. 2.466+, \text{ Ans.}$$

$$584. 9.09, \text{ Ans.}$$

$$594. 0.21029+, \text{ Ans.}$$

$$595. 2; \frac{4}{5}; 1.077+; 1.842+; 0.2, \text{ Ans.}$$

$$596. (3.5 \times 3.5 \times 3.5)^2 = 1838.265625, \text{ Ans.}$$

$$597. \left. \begin{array}{l} 0.646+, \\ 0.3, \end{array} \right\} \text{ Ans.}$$

$$600. 1.04+, \text{ Ans.}$$

$$601. 34.5, \text{ Ans.}$$

$$598. 2.012, \text{ Ans.}$$

$$602. 16, \text{ Ans.}$$

$$599. 5903, \text{ Ans.}$$

$$603. 16, \text{ Ans.}$$

$$604. \sqrt[3]{64 \times 4 \times 64 \times 2} = \sqrt[3]{64 \times 64 \times 8} = 4 \times 4 \times 2 = 32, \text{ Ans}$$

$$605. \sqrt[3]{4913} \text{ ft.} = 17 \text{ ft., length.}$$

$$17 \times 17 \times 6 \text{ sq. ft.} = 1734 \text{ sq. ft., Ans.}$$

$$606. \sqrt[3]{64 \times 18 \times 12} \text{ ft.} = \sqrt[3]{64 \times 2 \times 9 \times 3 \times 4} \text{ ft.}$$

$$= \sqrt[3]{64 \times 27 \times 8} \text{ ft.} = 4 \times 3 \times 2 \text{ ft.} = 24 \text{ ft., Ans.}$$

$$607. \sqrt[3]{268\frac{1}{2} \times 8} \text{ in.} = \sqrt[3]{2150.4} \text{ in.} = 12.9+ \text{ in., Ans.}$$

$$608. \sqrt[3]{42875} \text{ in.} = 35 \text{ in., length.}$$

$$(35 \times 35 \times 6 \div 144) \text{ sq. ft.} = 51\frac{1}{4} \text{ sq. ft., Ans.}$$

$$609. \sqrt[3]{8998912} \text{ ft.} = 208 \text{ ft.}$$

$$208 \times 208 \times 6 \text{ sq. ft.} = 259584 \text{ sq. ft., Ans.}$$

$$610. 244 \times 54 \text{ sq. ft.} = 13176 \text{ sq. ft., Ans.}$$

$$611. \sqrt{116 \times 9 \times 199 \times 324} \text{ sq. ft.}$$

$$= \sqrt{4 \times 29 \times 9 \times 199 \times 324} \text{ sq. ft.}$$

$$= 2 \times 3 \times 18 \sqrt{29 \times 199} \text{ sq. ft.}$$

$$= 108 \times 75.967+ \text{ sq. ft.} = 8204.4+ \text{ sq. ft., Ans.}$$

$$612. 128 \times 72 \text{ sq. ft.} = 9216 \text{ sq. ft., Ans.}$$

$$613. \left(\frac{14 + 11}{2 \times 12} \times 20 \right) \text{ sq. ft.} = 20\frac{1}{2} \text{ sq. ft., Ans.}$$

$$614. \sqrt{27.5 \times 14.5 \times 10.5 \times 52.5} \text{ sq. rd.}$$

$$= \sqrt{25 \times 1.1 \times 5 \times 2.9 \times 5 \times 2.1 \times 25 \times 2.1} \text{ sq. rd.}$$

$$= 25 \times 5 \times 2.1 \sqrt{1.1 \times 2.9} \text{ sq. ft.}$$

$$= 262.5 \times 1.78605+ \text{ sq. ft.} = 468.84 - \text{ sq. rd., area of the first triangle.}$$

$$\sqrt{5 \times 29 \times 13 \times 47} \text{ sq. rd.} = 297.649+ \text{ sq. rd., area of the second triangle.}$$

$$468.84 - \text{ sq. rd.} + 297.649+ \text{ sq. rd.} = 766.489+ \text{ sq. rd.}$$

$$= 4 \text{ a. } 126.489+ \text{ sq. rd., Ans.}$$

$$615. \frac{9 \times 167}{4 \times 12 \times 9} \text{ sq. rd.} = 3\frac{1}{3} \text{ sq. yd., Ans.}$$

$$616. \frac{160 \times 1089}{50 \times 4} \text{ ft.} = 871.2 \text{ ft., Ans.}$$

$$617. \frac{5280 \times 2 \times 50 \times 4}{1089 \times 160} \text{ a.} = 12\frac{4}{3} \text{ a., Ans.}$$

$$618. 40 \times 4 \text{ ft.} = 160 \text{ ft., extent of A's wall.}$$

$$\frac{40 \times 40}{80} \text{ ft.} = 20 \text{ ft., width of B's.}$$

$$(80 \text{ ft.} + 20 \text{ ft.}) \times 2 = 200 \text{ ft., extent of B's wall.}$$

Hence, B's is greater by 40 ft., Ans.

$$619. \frac{4 \times 33 \times 6 \times 144}{2 \times 8 \times 4} = 1782, \text{ Ans.}$$

$$620. \sqrt{160} \text{ rd.} = 12.649+ \text{ rd., length of side.}$$

$$(12.649+ \text{ rd.} + 10.649+ \text{ rd.}) \times 2 = 46.596+ \text{ rd., length of piece.}$$

$$46.596+ \text{ sq. rd., Ans.}$$

$$621. \frac{1}{2}, \text{ Ans.}$$

$$622. 4 \times \sqrt{640 \times 160} \text{ rd.} = 4 \sqrt{64 \times 16 \times 100} \text{ rd.}$$

$$= 4 \times 8 \times 4 \times 10 \text{ rd.} = 1280 \text{ rd., Ans.}$$

623. Two thirds of the trees, or 400 trees, would form a square; and there would be $\sqrt{400}$ trees, or 20 trees, on a side of this square; or the number of rows of trees is 20, and the number of trees in a row is $20 \times \frac{3}{2}$, or 30. Hence, the entire width of the orchard is $19 \times 25 \text{ ft.} + 12\frac{1}{2} \text{ ft.} + 12\frac{1}{2} \text{ ft.} = 20 \times 25 = 500 \text{ ft.}$, and the length $29 \times 25 \text{ ft.} + 12\frac{1}{2} \text{ ft.} + 12\frac{1}{2} \text{ ft.} = 30 \times 25 = 750 \text{ ft.}$

$$(750 \times 500) \text{ sq. ft.} = 375000 \text{ sq. ft., Ans.}$$

624. It will take 8 breadths whichever way it is put down; hence it will take less to cut the strips to go across the room, that is, each 16 ft. 6 in. long.

$$\frac{11}{2} \times \frac{4}{3} \text{ yd.} = 44 \text{ yd., 1st Ans. Across, 2d Ans.}$$

$$44 \text{ yd.} - \frac{11}{3} \times \frac{2}{2} \times \frac{4}{3} \text{ yd.} = 44 \text{ yd.} - 41\frac{2}{3} \text{ yd.} = 2\frac{2}{3} \text{ yd., 3d Ans.}$$

625. To lay the carpet lengthwise, it will take 8 breadths, each $8\frac{1}{2}$ yd. long, or 68 yd., costing \$74.80.

To lay the carpet across, it will take 11 breadths, each 17 ft.

$$10 \text{ in. long, or } \frac{107 \times 11}{6 \times 3} \text{ yd.} = 65\frac{7}{8} \text{ yd., costing \$71.93—}$$

$$\$74.80 - \$71.93 = \$2.87, \text{ Ans.}$$

$$626. \frac{37}{3} \times \frac{9}{4} \times 4 \text{ bd. ft.} = 111 \text{ bd. ft., Ans.}$$

627. $(2 \text{ ft. } 3 \text{ in.} + 1 \text{ ft. } 11 \text{ in.}) \div 2 = 2 \text{ ft. } 1 \text{ in., average width.}$

$$\frac{31}{2} \times \frac{25}{12} \times 4 \text{ bd. ft.} = 129\frac{1}{2} \text{ bd. ft., Ans.}$$

$$628. \frac{27}{2} \times \frac{2}{3} \times 8 \text{ bd. ft.} = 72 \text{ bd. ft., Ans.}$$

$$629. 11 \times \frac{1}{3} \times 3 \times 6 \text{ bd. ft.} = 66 \text{ bd. ft., Ans.}$$

630. $(23 \text{ in.} + 15 \text{ in.}) \div 2 = 19 \text{ in., average width.}$

$$2 \text{ } 1\frac{1}{2} \times \frac{19}{12} \times \frac{7}{2} \text{ bd. ft.} = 88\frac{1}{2} \text{ bd. ft., Ans.}$$

$$631. \frac{65}{2} \times \frac{5}{3} \times 8 \times 12 \text{ bd. ft.} = 2600 \text{ bd. ft., Ans.}$$

$$632. \frac{4}{24} \times \frac{5}{6} \times 8 \text{ bd. ft.} = 160 \text{ bd. ft., Ans.}$$

633. If one third of the lot is cut off by a line parallel to one of the shortest sides, the part cut off is a square.

$$(192 \div 3) \text{ sq. rd.} = 64 \text{ sq. rd.}$$

$\sqrt{64} \text{ rd.} = 8 \text{ rd.}$, width of the lot; and $8 \times 3 \text{ rd.}$, or 24 rd. , is the length of the lot.

$$\$ 1.25 \times (8 + 24) \times 2 = \$ 80, \text{ Ans.}$$

$$634. \$ 0.68 \times \frac{60 + 48}{2} \times \frac{11}{2} \times \frac{33}{2} = \$ 3332.34, \text{ Ans.}$$

635. If one fifth of the field is cut off by a line parallel to one of the shorter sides, the part cut off is a square.

$$\left. \begin{array}{l} (50 \div 5) \text{ a.} = 10 \text{ a.; } \sqrt{1600} \text{ rd.} = 40 \text{ rd., breadth,} \\ 40 \times 5 \text{ rd.} = 200 \text{ rd., length,} \end{array} \right\} \text{ Ans.}$$

$$636. \sqrt{125^2 - 25^2} \text{ ft.} = 25 \sqrt{5^2 - 1} \text{ ft.} = 122.474+ \text{ ft., Ans.}$$

$$637. \sqrt{160^2 - 130^2} \text{ ft.} = 10 \sqrt{16^2 - 13^2} \text{ ft.} = 93.27+ \text{ ft., Ans.}$$

$$638. \sqrt{9^2 + 12^2} \times 24 \text{ m.} = 360 \text{ m., Ans.}$$

$$639. \sqrt{16 \times 2} \text{ rd.} = 4 \sqrt{2} \text{ rd.} = 5.6568+ \text{ rd., Ans.}$$

$$640. \sqrt{4^2 + 5^2} \times 12 \times 4 \text{ m.} = 307.3499+ \text{ m., Ans.}$$

$$641. \sqrt{6 \times 160 \times 2 \times 2} \text{ rd.} = 16 \sqrt{10} \text{ rd.} = 61.968- \text{ rd., Ans.}$$

$$642. 200^2 \div 2 \text{ sq. ft.} = 20000 \text{ sq. ft.; Ans.}$$

$$643. \sqrt{28^2 + 21^2} \text{ ft.} = 7 \sqrt{4^2 + 3^2} \text{ ft.} = 35 \text{ ft., Ans.}$$

$$644. \sqrt{40^2 - 24^2} \text{ ft.} = 8 \sqrt{5^2 - 3^2} \text{ ft.} = 32 \text{ ft., Ans.}$$

$$645. \sqrt{54^2 - 25^2} \text{ ft.} + \sqrt{54^2 - 16^2} \text{ ft.} \\ = 47.864+ \text{ ft.} + 51.575+ \text{ ft.} = 99.44- \text{ ft., Ans.}$$

$$646. \sqrt{50^2 - 40^2} \text{ ft.} = 10 \sqrt{5^2 - 4^2} \text{ ft.} = 30 \text{ ft., Ans.}$$

$$647. \sqrt{120^2 - 72^2} \text{ ft.} = 24 \sqrt{5^2 - 3^2} \text{ ft.} = 96 \text{ ft., Ans.}$$

$$648. \sqrt{30^2 + 20^2 + 10^2} \text{ ft.} = 10 \sqrt{3^2 + 2^2 + 1^2} \text{ ft.} \\ = 37.416+ \text{ ft., Ans.}$$

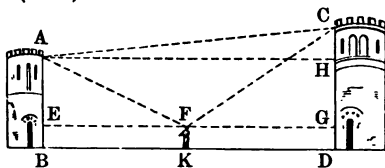
$$649. \sqrt{5^2 + 3^2 + 2^2} \text{ ft.} = 6.164+ \text{ ft., Ans.}$$

$$650. \sqrt{16^2 + 14.5^2 + 10^2} \text{ ft.} = 23.8- \text{ ft., Ans.}$$

$$651. \sqrt{128^2 + 72^2} \text{ m.} = 8 \sqrt{16^2 + 9^2} \text{ m.} = 146.86+ \text{ m., Ans.}$$

(652.)

Through A and F, respectively, draw A H and E G perpendicular to C D.



$$A F = 80 \text{ ft. ;}$$

$$F C = 100 \text{ ft.}$$

$$A E = A B - E B = A B - F K = 50 \text{ ft.} - 5 \text{ ft.} = 45 \text{ ft.}$$

$$C G = C D - G D = C D - F K = 70 \text{ ft.} - 5 \text{ ft.} = 65 \text{ ft.}$$

$$C H = C D - H D = C D - A B = 70 \text{ ft.} - 50 \text{ ft.} = 20 \text{ ft.}$$

$$E F = \sqrt{80^2 - 45^2} \text{ ft.} = 5 \sqrt{16^2 - 9^2} \text{ ft.} = 66.14+ \text{ ft.}$$

$$F G = \sqrt{100^2 - 65^2} \text{ ft.} = 5 \sqrt{20^2 - 13^2} \text{ ft.} = 75.99+ \text{ ft.}$$

$$A H = E G = 66.14+ \text{ ft.} + 75.99+ \text{ ft.} = 142.13+ \text{ ft.}$$

$$A C = \sqrt{142.13^2 + 20^2} \text{ ft.} = 143.53+ \text{ ft., Ans.}$$

$$653. (80^2 \times 0.7854 \div 272\frac{1}{4}) \text{ sq. rd.} = 18.46+ \text{ sq. rd., Ans.}$$

$$654. 140^2 \div 25^2 = 28^2 \div 5^2 = 31.36, \text{ Ans.}$$

$$655. \frac{1}{2} \times \sqrt{160 \div 0.7854} \text{ rd.} = 7.136+ \text{ rd., radius of circle.} \\ (7.136 \times 16\frac{1}{2}) \text{ ft.} - 3 \text{ ft.} = 114.744+ \text{ ft., Ans.}$$

$$656. (2 \times 40 \sqrt{3.1416}) \text{ rd.} = 141.796 \text{ rd., circumference of the circular lot.}$$

$$\sqrt{1600} \times 4 \text{ rd.} = 160 \text{ rd., perimeter of the square.}$$

$$\$ 0.75 \times (160 - 141.796) = \$ 13.65, \text{ Ans.}$$

657. The diameter of the circle is the diagonal of the square.

$$\sqrt{10^2 \div 2} \text{ in.} = 7.07 + \text{ in., Ans.}$$

658. $\sqrt{18^2 \div 2} \text{ in.} = 12.72 + \text{ in., Ans.}$

659. $(600 \div 3.1416) \text{ rd.} = \text{diameter.}$

$$\{(600 \div 3.1416)^2 \times 0.7854\} \text{ sq. rd.} = \text{area.}$$

$$\sqrt{\{(600 \div 3.1416)^2 \times 0.7854\}} \text{ rd.} =$$

$$\{(600 \div 3.1416) \times \sqrt{0.7854}\} \text{ rd.} = 169.26 - \text{ rd., Ans.}$$

660. $48 \text{ rd.} \times \sqrt{625} = 1200 \text{ rd., Ans.}$

661. $8 \text{ ft.} \times \sqrt{96 \div 24} = 8 \text{ ft.} \times 2 = 16 \text{ ft. Ans.}$

662. $75 \text{ ft.} \times \sqrt{361} = 75 \text{ ft.} \times 19 = 1425 \text{ ft., Ans.}$

663. $\sqrt{100^2 \times 0.7854} \text{ ft.} = 100 \sqrt{0.7854} \text{ ft.} = 88.6228 - \text{ ft. Ans.}$

664. $\sqrt{1600 \div 0.7854} \text{ rd.} = 40 \div \sqrt{0.7854} \text{ rd.} = 45.13 + \text{ rd., Ans.}$

665. $(35^2 \times 0.7854 \times 45) \text{ sq. rd.} = 43295.175 \text{ sq. rd.}$
 $= 270 \text{ a. } 95.175 \text{ sq. rd., Ans.}$

666. $3^2 : 5^2 = 16 \text{ h. : Ans.}$

$$9 : 25 = 16 \text{ h. : } 44 \text{ h. } 26 \text{ m. } 40 \text{ sec., Ans.}$$

667. $2 : 1 = (18\frac{1}{2})^3 : \text{diameter}^3 = \frac{50653}{8} : \frac{50653}{16}$

$$2 : 1 = 8^3 : \text{depth}^3 = 512 : 256$$

$$\left. \begin{aligned} \sqrt[3]{\frac{50653}{16}} \text{ in.} &= 14.68 + \text{ in., diameter,} \\ \sqrt[3]{256} \text{ in.} &= 6.349 + \text{ in., depth,} \end{aligned} \right\} \text{ Ans.}$$

668. $\left(\frac{5}{2}\right)^2 : 1^2 = \frac{23}{4} \text{ h. : Ans.}$

$$\frac{25}{4} : 1 = \frac{23}{4} \text{ h. : } 55.2 \text{ m., Ans.}$$

669. $9^2 : 12^2 = 3 \text{ d. : Ans.}$

$$3^2 : 4^2 = 9 : 16 = 3 \text{ d. : } 5\frac{1}{4} \text{ d., Ans.}$$

$$670. 6 \text{ ft.} \times \sqrt{35} = 35.496 + \text{ ft. Ans.}$$

$$671. 18 : 8, \text{ or } 9 : 4 = 3^2 \text{ in. : Ans.}^2$$

$$3 : 2 = 3 \text{ in. : 2 in., Ans.}$$

$$672. \frac{30 \times \overset{432}{\cancel{8}} \times \cancel{2} \times \overset{1728}{\cancel{1728}}}{\cancel{8} \times \cancel{4} \times \cancel{2}} = 12960, \text{ Ans.}$$

$$673. \text{ Draw a figure to represent the walls.}$$

$$(50 \text{ ft.} + 29 \text{ ft.}) \times 2 = 158 \text{ ft., length of wall.}$$

$$\frac{158 \times \overset{3}{\cancel{24}} \times \overset{108}{\cancel{3}} \times \overset{1728}{\cancel{1728}}}{\cancel{8} \times \cancel{4} \times \cancel{2} \times \cancel{2}} = 153576, \text{ Ans.}$$

$$674. (36 \text{ ft.} + 24\frac{1}{2} \text{ ft.}) \times 2 = 120\frac{1}{2} \text{ ft., length of wall.}$$

$$(120\frac{1}{2} \times 23 - 5 \times 4 \times 8 - 30 \times 3 \times 6) \times \frac{\overset{9}{4} \times \overset{1728}{\cancel{1728}}}{\cancel{8} \times \cancel{8} \times \cancel{4} \times \cancel{2}} = 74712, \text{ Ans.}$$

$$675. (202 \text{ ft.} + 99 \text{ ft.}) \times 2 = 602 \text{ ft., length of wall.}$$

$$\$0.04 \times 602 \times 2 \times 4 = \$192.64, \text{ Ans.}$$

$$676. (198 \text{ ft.} + 93 \text{ ft.}) \times 2 = 582 \text{ ft., length of the ditch.}$$

$$\$0.00625 \times 582 \times 3 \times 2\frac{1}{2} = \$27.28\frac{1}{2}, \text{ Ans.}$$

$$677. (198 \text{ ft.} + 99 \text{ ft.}) \times 2 = 594 \text{ ft., length of the wall.}$$

$$\$0.0625 \times 594 \times 2 \times 4\frac{1}{2} = \$334.125, \text{ Ans.}$$

$$678. \frac{13 \times 13 \times 13 \times \overset{27}{\cancel{1728}}}{\cancel{8} \times \cancel{4} \times \cancel{2}} = 59319, \text{ Ans.}$$

$$679. \frac{10 \times \overset{4}{\cancel{16}}}{9 \times \cancel{4}} \text{ ft.} = 4\frac{2}{3} \text{ ft., Ans.}$$

$$680. \left(\frac{160 \times 121}{4} \times \frac{1\frac{1}{2}}{36} \right) \text{ cu. yd.}$$

$$= \frac{\overset{5}{\cancel{160}} \times 121 \times 1}{\cancel{4} \times \overset{5}{\cancel{24}}} \text{ cu. yd.} = 201\frac{1}{3} \text{ cu. yd., Ans.}$$

$$681. (3^2 \times 0.7854 \times \frac{8}{3}) \text{ cu. ft.} = 18.8496 \text{ cu. ft., Ans.}$$

$$682. (5^3 \times 0.5236) \text{ cu. ft.} = 65.45 \text{ cu. ft., Ans.}$$

$$683. \frac{0.0034}{231} \frac{6^2 \times 0.7854 \times 10 \times 1728}{231} \text{ gal.} = 2115.072 \text{ gal., Ans.}$$

(684.)

$$\{(11^2 \times 0.7854 + 9^2 \times 0.7854 + 11 \times 9 \times 0.7854) \times \frac{8}{3} \div 231\} \text{ qt.}$$

$$= \frac{0.0034}{3 \times 231} \frac{301 \times 0.7854 \times 8 \times 4}{231} \text{ qt.} = 10.9+ \text{ qt., Ans.}$$

(685.)

$$\{(7^2 \times 0.7854 + 4\frac{1}{2}^2 \times 0.7854 + 7 \times 4\frac{1}{2} \times 0.7854) \times \frac{8}{3} \div 231\} \text{ pt.}$$

$$= \frac{0.0034}{4 \times 3 \times 231} \frac{403 \times 0.7854 \times 8 \times 8}{231} \text{ pt.} = 7.3+ \text{ pt., Ans.}$$

(686.)

$$7912 \times 7912 \times 3.1316 \text{ sq. m.} = 196663355.7504 \text{ sq. m., Ans.}$$

$$687. \sqrt[3]{728} \div 0.5236 \text{ yd.} = 11.16+ \text{ yd., Ans.}$$

$$688. \text{ The diameter of the globe is the diagonal of the cube.}$$

$$\sqrt{6^2 \div 3} \text{ in.} = \sqrt{12} \text{ in.} = 3.464+ \text{ in., Ans.}$$

$$689. 3 : 5 = 12^3 : (\text{Height of 2d})^3. \quad 3 : 5 = 1728 : 2880$$

$$3 : 7 = 12^3 : (\text{Height of 3d})^3. \quad 3 : 7 = 1728 : 4032$$

$$\left. \begin{array}{l} \sqrt[3]{2880} \text{ ft.} = 14.22+ \text{ ft., 2d,} \\ \sqrt[3]{4032} \text{ ft.} = 15.91+ \text{ ft., 3d,} \end{array} \right\} \text{ Ans.}$$

$$690. \left. \begin{array}{l} 8 \times \sqrt[3]{3} \text{ in.} = 11.5+ \text{ in.,} \\ 6 \times \sqrt[3]{3} \text{ in.} = 8.6+ \text{ in.,} \\ 4 \times \sqrt[3]{3} \text{ in.} = 5.8- \text{ in.,} \end{array} \right\} \text{ Ans.}$$

$$691. 4^3 : 50^3, \text{ or } 2^3 : 25^3, \text{ or } 8 : 15625 = 8 \text{ lb.} : 15625 \text{ lb., Ans.}$$

$$692. 29 : 9 = 26^3 : \text{Ans.}^3 \quad 29 : 9 = 17576 : 5454.62+,$$

$$\sqrt[3]{5454.62+} \text{ ft.} = 17.6+ \text{ ft., Ans.}$$

$$693. 4^3 \div (\frac{1}{2})^3 = 64 \times 8 = 512, \text{ Ans.}$$

$$694. 8 : 1 = 10^3 : \text{Ans.}^3 \quad 2 : 1 = 10 : 5. \quad 5 \text{ in., Ans.}$$

$$695. 7912 \text{ m.} \times \sqrt[3]{1404928} = 7912 \text{ m.} \times 112 = 886144 \text{ m., Ans}$$

$$696. \sqrt[3]{15 \times 5 \times 3} \text{ ft.} = \sqrt[3]{225} \text{ ft.} = 6.08+ \text{ ft., Ans.}$$

$$697. 50 : 164 = 8^3 : \text{Ans.}^3 \quad 50 : 164 = 512 : 1679.36.$$

$$\sqrt[3]{1679.36} \text{ in.} = 11.88+ \text{ in., Ans.}$$

698. The bell is $740 \div 4$, or 185, times as large; hence, each dimension is $\sqrt[3]{185}$ times as large.

$$\left. \begin{aligned} 6 \times \sqrt[3]{185} \text{ in.} &= 34.188+ \text{ in.,} \\ 4 \times \sqrt[3]{185} \text{ in.} &= 22.792+ \text{ in.,} \\ \frac{1}{2} \times \sqrt[3]{185} \text{ in.} &= 2.849+ \text{ in.,} \end{aligned} \right\} \text{Ans.}$$

$$699. \sqrt[3]{36} \text{ in.} = 3.3+ \text{ in., Ans.}$$

$$700. \quad 3 : 1 = 20^3 : \overline{\text{Altitude}}^3 \text{ of A's.}$$

$$3 : 2 = 20^3 : \overline{\text{Altitude}}^3 \text{ of A's and B's.}$$

$$3 : 1 = 8000 : 2666\frac{2}{3}$$

$$3 : 2 = 8000 : 5333\frac{1}{3}$$

$$\sqrt[3]{2666\frac{2}{3}} \text{ ft.} = 13.867+ \text{ ft., Altitude of A's.}$$

$$\sqrt[3]{5333\frac{1}{3}} \text{ ft.} = 17.471+ \text{ ft., Altitude of A's and B's.}$$

$$\left. \begin{aligned} &13.867+ \text{ ft., A's,} \\ 17.471+ \text{ ft.} - 13.867+ \text{ ft.} &= 3.604+ \text{ ft., B's,} \\ 20 \text{ ft.} - 17.471+ \text{ ft.} &= 2.529- \text{ ft., C's,} \end{aligned} \right\} \text{Ans.}$$

CONTRACTIONS IN MULTIPLICATION.

Page 334.

2. $43700 - 437 = 43263$, Ans.
 3. $8764000 - 8764 = 8755236$, Ans.
 4. $184320000 - 18432 = 184301568$, Ans.

CONTRACTIONS IN DIVISION.

Page 335 - 336.

6.
$$\begin{array}{r} 8) 8712 \\ 9) \overline{1089} \\ 121, \text{ Ans.} \end{array}$$

$$\begin{array}{r} 7. 9) 17658 \\ 9) \overline{1962} \\ 218, \text{ Ans.} \end{array}$$

 8. 16, and $16 + 48$ rem., or 16, and 64 rem., Ans.
 9. 187, and $187 + 432$ rem., or 187, and 619 rem., Ans.
 10. 278, and $278 + 4567$ rem., or 278, and 4845 rem., Ans.

ADDITION OF FRACTIONS.

Page 339.

13. $\frac{1}{6} + \frac{1}{5} = \frac{5+6}{30} = \frac{11}{30}$, Ans.
 14. $\frac{1}{4} - \frac{1}{9} = \frac{9-4}{36} = \frac{5}{36}$, Ans.

GREATEST COMMON DIVISOR OF FRACTIONS.

Page 339.

16. $\frac{1}{72}$, Ans.
 17. G. C. D. of $\frac{2}{3}$, $\frac{3}{4}$, and $\frac{5}{6}$ is $\frac{1}{120}$, Ans.
 18. G. C. D. of $\frac{2^2}{4}$, $\frac{1^2}{8}$, and $\frac{1}{1}$ is $\frac{1}{8}$, Ans.
 19. $\frac{1}{117}$, Ans.
 20. G. C. D. of $\frac{2}{4}$, $\frac{1^1}{2}$, $\frac{1^2}{3}$, and $\frac{2^2}{8}$ is $\frac{1}{60}$, Ans.

LEAST COMMON MULTIPLE OF FRACTIONS.

Page 340.

22. $\frac{1}{2} = 2\frac{1}{2}$, Ans.

23. L. C. M. of $\frac{3}{4}$, $\frac{2}{3}$, and $\frac{5}{6}$ is 9240, Ans.

24. L. C. M. of $\frac{3}{4}$, $\frac{1}{2}$, and $\frac{2}{5}$ is 21, Ans.

25. L. C. M. of $\frac{1}{2}$, $\frac{1}{3}$, $\frac{2}{5}$, and $\frac{3}{4}$ is 84, Ans.

26. L. C. M. of $\frac{1}{2}$, $\frac{1}{3}$, $\frac{2}{5}$, and $\frac{3}{4}$ is 3256, Ans.

27. L. C. M. of $\frac{3}{4}$ and $\frac{1}{2}$ is 6, 1st Ans.

$$\left. \begin{array}{l} 6 \div \frac{3}{4} = 9 \text{ times A,} \\ 6 \div \frac{1}{2} = 8 \text{ times B,} \end{array} \right\} 2\text{d Ans.}$$

CIRCULATING DECIMALS.

Page 342-344.

28. $\frac{4}{9}$, Ans.

33. $\frac{81}{99} = \frac{9}{11}$, Ans.

29. $\frac{36}{99} = \frac{4}{11}$, Ans.

34. $\frac{144}{999} = \frac{16}{111}$, Ans.

30. $\frac{18}{999} = \frac{2}{111}$, Ans.

35. $\frac{9}{9999} = \frac{1}{1111}$, Ans.

31. $\frac{216}{999} = \frac{8}{37}$, Ans.

36. $\frac{8199}{99999} = \frac{911}{11111}$, Ans.

32. $\frac{234}{9999} = \frac{26}{1111}$, Ans.

37. $\frac{246789}{999999} = \frac{27421}{111111}$, Ans.

42. $0.871\dot{6} = \frac{8716 - 8}{9990} = \frac{8708}{9990} = \frac{4354}{4995}$, Ans.

43. $3.041\dot{2} = 3\frac{412 - 4}{9900} = 3\frac{408}{9900} = 3\frac{34}{825}$, Ans.

44. $2.187\dot{3} = 2\frac{1873 - 1}{9990} = 2\frac{1872}{9990} = 2\frac{104}{555}$, Ans.

45. $5.041\dot{5} = 5\frac{415 - 4}{9900} = 5\frac{411}{9900} = 5\frac{137}{3300}$, Ans.

$$46. \quad 4.2\dot{6}7\dot{4} = 4\frac{2674 - 2}{9990} = 4\frac{2672}{9990} = 4\frac{1336}{4995}, \text{ Ans.}$$

$$47. \quad 52.8\dot{7}6\dot{2} = 52\frac{8762 - 8}{9990} = 52\frac{8754}{9990} = 52\frac{1459}{1665}, \text{ Ans.}$$

$$\begin{array}{r} 51. \quad 0.8\dot{4}\dot{3} = 0.8\dot{4}343\dot{4}\dot{3} \\ 2.\dot{7}\dot{6}\dot{4} = 2.7\dot{6}4764\dot{7} \\ \hline 3.608199\dot{1}, \text{ Ans.} \end{array}$$

$$\begin{array}{r} 52. \quad 4.\dot{5}\dot{3}\dot{2} = 4.5\dot{3}2532\dot{5} \\ 3.8\dot{7}\dot{6} = 3.8\dot{7}6767\dot{6} \\ \hline 0.655764\dot{8}, \text{ Ans.} \end{array}$$

$$\begin{array}{r} 53. \quad 14.32\dot{5} = 14.3255\dot{5} \\ 0.\dot{2}69 = 0.2692\dot{6} \\ \hline 14.5948\dot{2}, \text{ Ans.} \end{array}$$

$$\begin{array}{r} 54. \quad 3.4\dot{7}\dot{6} = 3.4\dot{7}6767\dot{6} \\ 8.\dot{7}\dot{3}\dot{2} = 8.7\dot{3}2732\dot{7} \\ \hline 12.209500\dot{4}, \text{ Ans.} \end{array}$$

$$\begin{array}{r} 55. \quad 9.5\dot{4}\dot{8} = 9.5\dot{4}8484\dot{8} \\ 2.\dot{3}\dot{7}\dot{9} = 2.3\dot{7}9379\dot{3} \\ \hline 7.169105\dot{4}, \text{ Ans.} \end{array}$$

$$\begin{array}{r} 56. \quad 5.\dot{2}\dot{7}\dot{9} = 5.\dot{2}7927\dot{9} \\ 4.\dot{6}\dot{3} = 4.\dot{6}3636\dot{3} \\ 0.\dot{6} = 0.\dot{6}6666\dot{6} \\ \hline 10.582309\dot{5}, \text{ Ans.} \end{array}$$

$$\begin{array}{r} 57. \quad 2.6\dot{1}\dot{7} = 2.6\dot{1}71\dot{7} \\ 0.345\dot{6} = 0.3456\dot{3} \\ 2.9\dot{6}28\dot{0} \\ 0.18\dot{7} = 0.1878\dot{7} \\ \hline 2.7749\dot{2}, \text{ Ans.} \end{array}$$

PARTIAL PAYMENTS.

Page 351 - 356.

(59.)

| | |
|--|-------------------|
| Amount of \$1675, July 7, 1891, to July 7, 1892 . | \$1775.50 |
| Amount of \$300, Dec. 8, " " " " | 310.45 |
| New principal " " | <u>\$1465.05</u> |
| Interest of \$1465.05, July 7, 1892, to July 7, 1893 . | 87.903 |
| Amount of " " " | <u>\$1552.953</u> |
| Amount of \$60, October 19, 1892, to " " | 62.58 |
| New principal " " | <u>\$1490.373</u> |
| Interest of \$1490.373, July 7, 1893, to July 7, 1894 . | 89.422 |
| Amount of " " " | <u>\$1579.795</u> |
| Amount of \$500, August 15, 1893, to " " | 526.833 |
| New principal " " | <u>\$1052.962</u> |
| Interest of \$1052.962, July 7, 1894, to Sept. 1, 1894 . | 9.652 |
| Amount due Sept. 1, 1894 Ans. | <u>\$1062.614</u> |

(61.)

| | |
|--|-------------------|
| Interest due on principal annually $\$642 \times 0.06 =$ | <u>\$38.52</u> |
| Principal | \$642 |
| Total annual interest $\$38.52 \times 7 =$ | 269.64 |
| Int. on \$38.52 for $(6+5+4+3+2+1)$ yr., or 21 yr. | 48.535+ |
| Ans. | <u>\$960.175+</u> |

(62.)

| | |
|--|------------------|
| Interest due on principal annually $\$520 \times 0.06 =$ | <u>\$31.20</u> |
| Total annual interest $\$31.20 \times 4\frac{1}{2} =$ | <u>\$140.40</u> |
| Int. on \$31.20 for $(3\frac{1}{2} + 2\frac{1}{2} + 1\frac{1}{2} + \frac{1}{2})$ yr., or 8 yr. | 14.976 |
| Total interest due | <u>\$155.376</u> |
| Simple interest on \$520 for 4 yr. 6 m. | 140.40 |
| Ans. | <u>\$14.976</u> |

(63.)

| | |
|---|------------------|
| Interest due on principal annually $\$465 \times 0.06 =$ | <u>\$27.90</u> |
| Principal | \$465 |
| Total annual interest $\$27.90 \times 8\frac{1}{2} =$ | 237.15 |
| Int. on \$27.90 for $(7\frac{1}{2} + 6\frac{1}{2} + 5\frac{1}{2} + 4\frac{1}{2} + 3\frac{1}{2} + 2\frac{1}{2} + 1\frac{1}{2} + \frac{1}{2})$ yr., or 32 yr. | 53.568 |
| Ans. | <u>\$755.718</u> |

(64.)

| | | |
|---|------------------------|---------------------------------|
| Interest due on principal annually | $\$562 \times 0.06 =$ | <u>$\\$33.72$</u> |
| Principal | | <u>$\\$562$</u> |
| Total annual interest . . . | $\$33.72 \times 3.3 =$ | 111.276 |
| Int. on $\$33.72$ for $(2.3+1.3+0.3)$ yr., or 3.9 yr. | | 7.89048 |
| | Ans. | <u>$\\$681.166+$</u> |

(66.)

| | |
|---|--------------------------------|
| Amount of $\$274$, April 7, 1893, to April 7, 1894 . | $\$290.44$ |
| Amount of $\$100$, March 31, 1894 " " " | <u>100.117</u> |
| Amount due " " " | <u>$\\$190.323$</u> |
| Total annual interest due " " 1896 . | 22.839 |
| Int. on " " " " " " | <u>0.685</u> |
| Amount due, " " " Ans. | <u>$\\$213.847$</u> |

(68.)

By the General Rule (Art. 553).

First payment, September 13, 1892, is less than the interest due at the end of the year.

| | |
|--|----------------------------------|
| Interest due on principal annually, $\$2567 \times 0.06 =$ | <u>$\\$154.02$</u> |
| Principal | <u>$\\$2567$</u> |
| Total annual interest due Apr. 18, 1894 | 308.04 |
| Interest for 1 yr. on the $\$154.02$ which was due April 18, 1893 . . . | <u>9.2412</u> |
| Amount to April 18, 1894 . . . | <u>$\\$2884.2812$</u> |
| Payment September 13, 1892 . . . | $\$120$ |
| Interest on $\$120$, Sept. 13, 1892, to April 18, 1894 | 11.50 |
| Payment May 19, 1893 | 955 |
| Interest on $\$955$, May 19, 1893, to April 18, 1894 | 52.525 |
| Total payments plus interest to April 18, 1894 | <u>1139.025</u> |
| Amount due April 18, 1894 . . . | <u>$\\$1745.2562$</u> |

| | | |
|---|-----------|-----------------------|
| Brought forward | | \$1745.256 |
| Interest on \$1745.256, Apr. 18, 1894, to April 18, 1895 | \$104.715 | |
| Interest on \$1745.256, Apr. 18, 1895, to Sept. 17, 1895 | 43.631 | |
| Interest on \$104.715, April 18, 1895, to Sept. 17, 1895 | 2.618 | 150.964 |
| Amount | | <u>\$1896.22</u> |
| Payment Oct. 10, 1894 | \$65 | |
| Interest on \$65, Oct. 10, 1894, to Sept. 17, 1895 | 3.65 | 68.65 |
| Amount due | | <u>Ans. \$1827.57</u> |

By the Vermont Rule (Art. 554).

First payment, Sept. 13, 1892, is less than the interest due at the end of the year.

| | | |
|--|-----------------|------------------------|
| Principal | | \$2567 |
| Annual interest due April 18, 1893 . . | \$154.02 | |
| Amount of \$120, Sept. 13, 1892, to April 18, 1893 | 124.30 | |
| Balance of interest due April 18, 1893 . | <u>\$29.72</u> | |
| Interest on \$29.72, April 18, 1893, to April 18, 1894 | 1.783 | |
| Annual interest due April 18, 1894 . . | 154.02 | 185.523 |
| Amount " " | | <u>\$2752.523</u> |
| Amount of \$955, May 19, 1893, to April 18, 1894 | | 1007.525 |
| Amount due April 18, 1894 | | <u>\$1744.998</u> |
| Annual interest on \$1744.998, due April 18, 1895 | \$104.70 | |
| Amount of \$65, Oct. 10, 1894, to April 18, 1895 | 67.037 | |
| Balance of interest due April 18, 1895 | <u>\$37.663</u> | |
| Interest on \$37.663, April 18, 1895, to Sept. 17, 1895 | 0.942 | |
| Interest on \$1744.998, April 19, 1895, to Sept. 17, 1895 | 43.625 | 82.23 |
| Amount due Sept. 17, 1895 | | <u>Ans. \$1827.228</u> |

NOTE 1. The amount due by the Vermont rule, April 18, 1894, is less than by the general rule, by the interest on the \$4.30 (allowed on the payment of the \$120), April 18, 1893, to April 18, 1894 . . . \$0.258

The amount due Sept. 17, 1895, is still further lessened
By the interest on this \$0.258, April 18, 1894, to April 18, 1895 . . . 0.0155
By the interest on \$0.258 + \$0.0155, or \$0.2735, April 18, 1895, to Sept. 17, 1895 . . . 0.0068
By the interest on the \$2.037 (the interest on the \$65), April 18, 1895, to Sept. 17, 1895 . . . 0.0509
\$0.3312

From Oct. 10, 1894, to April 18, 1895, is 6 m. 8 d.; from April 18, 1895, to Sept. 17, 1895, is 4 m. 30 d., or, in reckoning the interest, 5 m., making a total of 11 m. 8 d. But from Oct. 10, 1894, to Sept. 17, 1895, the time is 11 m. 7 d. Thus it happens in this example, that by the general rule the interest accruing by the payment of the \$65 is reckoned for 11 m. 7 d., while by the Vermont rule it is reckoned in two parts: first, for 6 m. 8 d., then (on the balance, \$37.663), for 5 m. Thus the interest accruing on the \$65 is one cent less by the general rule than by the Vermont rule. This makes the difference \$0.34+ instead of \$0.33+.

By the New Hampshire Rule (Art. 555).

First payment, Sept. 13, 1892, is less than the interest due at the end of the year.

| | | |
|---|-----------|-----------------|
| Principal | | \$2567 |
| Annual interest due April 18, 1893 . . | \$154.02 | |
| Payment Sept. 13, 1892 (without interest) | 120 | |
| Balance of interest due April 18, 1893 | \$34.02 | |
| Interest on \$34.02, April 18, 1893, to April 18, 1894 | 2.041 | |
| Annual interest due April 18, 1894 . . | 154.02 | 190.081 |
| Amount " " | | \$2757.081 |
| Amount of \$955, May 19, 1893, to April 18, 1894 | | 1007.525 |
| Amount due April 18, 1894 | | \$1749.556 |
| Annual interest on \$1749.556 due April 18, 1895 | \$104.973 | |
| Payment Oct. 10, 1894 (without interest) | 65 | |
| Balance of interest due April 18, 1895 | \$39.973 | |
| Interest on \$39.973, April 18, 1895, to Sept. 17, 1895 | 0.999 | |
| Interest on \$1749.55, April 18, 1895, Sept. 17, 1895 | 43.739 | 84.711 |
| Amount due Sept. 17, 1895 | | Ans. \$1834.267 |

NOTE 2. The amount due by the N. H. rule April 18, 1894, is greater than by the Vermont rule, by the interest on the \$120, Sept. 13, 1892, to April 18, 1893 \$ 4.30
 Together with the interest on this \$4.30, April 18, 1893, to April 18, 1894 0.258
 Excess N. H. rule over Vermont rule April 18, 1894. \$ 4.558

The amount due Sept. 17, 1895, is still further increased
 By the interest on this \$ 4.558, April 18, 1894, to April 18, 1895 0.273
 By the interest on this \$ 0.273, April 18, 1895, to Sept. 17, 1895 0.0068
 By the interest on the \$ 4.558, April 18, 1895, to Sept. 17, 1895 0.1139
 By the interest on the \$ 65, Oct. 10, 1894, to April 18, 1895 2.037
 By the interest on this \$ 2.037, April 18, 1895, to Sept. 17, 1895 0.0509
\$ 7.0396

FOREIGN EXCHANGE.

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72. $\$4.88 \times 2000 = \9760 , Ans.

73. $\$4.88 \times 975 = \4758 , Ans.

74. $\$4.89\frac{1}{8} \times 800 = \3913 , cost of a set of exchange.

$\$4.8665 \times 803 = \3907.7995 , cost of the sovereigns.

Bal. in favor of the sovereigns, $\$5.2005$, Ans.

75. $\$0.955 \times (1275 \div 4) = \$304.406\frac{1}{4}$, Ans.

76. $\$(2785 \div 5.13\frac{1}{8}) = \$542.75+$, Ans.

CUSTOMS.

Page 361.

77. $\$0.025 \times 4796 = \119.90 , Ans.

78. $\$7560 \times 0.6 = \4536 , Ans.

79. $\$0.50 \times 328 \times 19 = \3116 , specific.

$\$0.193 \times 4 \times 375 \times 19 \times 0.35 = \1925.175 , ad valorem.

Total amount of duties, $\$5041.175$, 1st Ans.

$\$(4 \times 375 \times 19 \div 5.14) = \5544.747 , 2d Ans.

$\$13.50 \times 19 = \256.50

Total cost, $\$10842.422$

$\$10842.422 \div 7125 = \$1.522-$, 3d Ans.

$$80. \$0.06\frac{1}{4} \times (63 \times 9 - 15) = \$34.50, \text{ Ans.}$$

$$81. \$0.02\frac{1}{2} \times 97 \times 250 = \$606.25, \text{ Ans.}$$

$$82. 2 \text{ marks} \times 50 \times 0.50 = 50 \text{ marks,}$$

$$\$0.238 \times 50 = \$11.90, \text{ 1st Ans.}$$

$$\$0.965 \times (2 \times 50 \div 4) = \$24.125, \text{ cost of the set of exchange.}$$

$$(\$11.90 + \$24.125 + \$12.50) \div 50 = \$0.9705, \text{ 2d Ans.}$$

$$83. \text{ Cost of set of exchange to pay for goods,}$$

$$\$ (2.06 \times 2046 \times 25 \div 5.15) = \$20460$$

Ad valorem duty,

$$\$0.193 \times 2.06 \times 2046 \times 25 \times 0.40 = \$8134.4868$$

Specific duty,

$$\$0.08 \times 2046 \times 1.2 \times 25 \times 1.196 = \$5872.8384$$

$$\text{Freight and other charges, } \$17 \times 25 = \$425$$

$$\text{Total cost, } \$34892.3252$$

$$\$34892.3252 \div (2046 \times 25 \times 1.0936) = \$0.624-, \text{ Ans.}$$

$$84. \$4.8665 \times 0.4 \times 75 \times 0.6 = \$87.597, \text{ 1st Ans.}$$

$$\$4.88 \times 0.4 \times 75 = \$146.40, \text{ 2d Ans.}$$

ROOTS.

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(85.)

$$26^2 = 22 \times 30 + 4^2 = 676, \text{ Ans.}$$

$$34^2 = 30 \times 38 + 4^2 = 1156, \text{ Ans.}$$

$$47^2 = 44 \times 50 + 3^2 = 2209, \text{ Ans.}$$

$$53^2 = 50 \times 56 + 3^2 = 2809, \text{ Ans.}$$

$$67^2 = 64 \times 70 + 3^2 = 4489, \text{ Ans.}$$

$$78^2 = 76 \times 80 + 2^2 = 6084, \text{ Ans.}$$

$$85^2 = 80 \times 90 + 5^2 = 7225, \text{ Ans.}$$

$$93^2 = 86 \times 100 + 7^2 = 8649, \text{ Ans.}$$

$$107^2 = 100 \times 114 + 7^2 = 11449, \text{ Ans.}$$

$$147^2 = 144 \times 150 + 3^2 = 21609, \text{ Ans.}$$

$$491^2 = 482 \times 500 + 9^2 = 241081, \text{ Ans.}$$

$$992^2 = 984 \times 1000 + 8^2 = 984064, \text{ Ans.}$$

ARITHMETICAL PROGRESSION.**Page 366 - 367.**

$$88. 4 + 3 \times 7 = 25, \text{ Ans.}$$

$$89. 98 - 6 \times 3 = 80, \text{ Ans.}$$

$$90. \$200 + \$10 \times 18 = \$380, \text{ Ans.}$$

NOTE. A sum of money at simple interest forms an arithmetical series of which the principal is the first term, the interest of the principal for one year is the common difference, the number of years plus one is the number of terms, and the amount for the given time is the last term.

$$91. (55 - 4) \div 17 = 3, \text{ Ans.}$$

$$92. (21 - 3) \text{ yr.} \div 6 = 3 \text{ yr.}, \text{ Ans.}$$

93. $(\$450 - \$300) \div 10 = \$15$, the common difference, that is, the interest of \$300 for one year.

$$\$15 \div \$300 = 0.05; 5\%, \text{ Ans.}$$

$$94. (57 - 15) \div 6 + 1 = 8, \text{ Ans.}$$

$$95. (23 - 5) \div 2 + 1 = 10, \text{ Ans.}$$

$$96. (5 + 61) \times 15 \div 2 = 495, \text{ Ans.}$$

$$97. (1 + 12) \times 12 \div 2 = 78, \text{ Ans.}$$

GEOMETRICAL PROGRESSION.**Page 369 - 370.**

$$98. 2^7 \times 5 = 640, \text{ Ans.}$$

$$99. (\frac{1}{2})^5 \times 9 = \frac{9}{32}, \text{ Ans.}$$

$$100. 1.05^4 \times 4 = 4.6305, \text{ Ans.}$$

$$101. \$1.06^5 \times 15 = \$20.07339, \text{ Ans.}$$

NOTE. A sum of money at compound interest forms a geometrical series of which the principal is the first term, the amount of \$1 for one year is the ratio, the number of years plus one is the number of terms, and the amount for the given time is the last term.

$$102. \$100 \times 2^5 = \$3200, \text{ Ans.}$$

$$103. \sqrt[4]{768 \div 3} = 4, \text{ Ans.}$$

$$104. \sqrt[5]{625 \div 5} = 5, \text{ Ans.}$$

$$105. \sqrt[3]{1728 \div 8} = 6, \text{ Ans.}$$

$$106. (2916 \times 3 - 4) \div 2 = 4372, \text{ Ans.}$$

$$107. (9375 \times 5 - 3) \div 4 = 11718, \text{ Ans.}$$

$$108. \$1 \times 2^{11} = \$2048, \text{ the last payment.}$$

$$(\$2048 \times 2 - \$1) \div 1 = \$4095, \text{ Ans.}$$

$$109. \frac{3^7 - 1}{3 - 1} \times 5 = 5465, \text{ Ans.}$$

ALLIGATION.

Page 371-374.

$$\begin{array}{rcl}
 111. & \$0.60 \times 8 = & \$4.80 \\
 & 0.75 \times 4 = & 3.00 \\
 & 0.36 \times 15 = & 5.40 \\
 & 0.70 \times 6 = & 4.20 \\
 & \hline
 & 33 & \$17.40 \\
 & & \$0.52\overline{17}, \text{ Ans.}
 \end{array}$$

$$115. \quad \begin{array}{l} \$35, \\ 42, \\ \$45 \left\{ \begin{array}{l} 48, \\ 50, \\ 55, \end{array} \right. \end{array} \quad \begin{array}{l} + \$10 \times 2 = + \$20 \\ + \quad 3 \times 1 = + \quad 3 \\ - \quad 3 \times 1 = - \quad 3 \\ - \quad 5 \times 2 = - \quad 10 \\ - \quad 10 \times 1 = - \quad 10 \end{array}$$

2 of the \$35, 2 of the \$50, and 1 of each of the other kinds, Ans.

$$116. \quad \begin{array}{l} 30, \\ 35, \\ 38 \left\{ \begin{array}{l} 40, \\ 45, \end{array} \right. \end{array} \quad \begin{array}{l} + 8 \times 35 = + 280 \\ + 3 \times 2 = + \quad 6 \\ - 2 \times 3 = - \quad 6 \\ - 7 \times 40 = - 280 \end{array}$$

35 of the 30 cent, 2 of the 35, and 3 of the 40, Ans.

$$\begin{array}{rcl}
 117. & & \\
 & \left\{ \begin{array}{l} 700, \quad + 180 \times 3 = + 540 \\ 840, \quad + 40 \times 2 = + 80 \\ 900, \quad - 20 \times 7 = - 140 \\ 1000, \quad - 120 \times 4 = - 480 \\ \hline 16 \end{array} \right.
 \end{array}$$

In the mass taken I have 16 oz.; but 8 oz. are required; hence, I can take one half as much of each as obtained above.

$1\frac{1}{2}$ oz. of the 700, 1 of the 840, $3\frac{1}{2}$ of the 900, and 2 of the 1000, Ans.

NOTE. These solutions of 115, 116, 117 present in each example only one of an infinite number of possible solutions.

METRIC EQUIVALENTS.

Page 374-375.

3. $2.2046 \text{ lb.} \times 12000 = 26455.2 \text{ lb., Ans.}$

4. $1.0567 \text{ qt.} \times 1000 = 1056.7 \text{ qt., Ans.}$

6. $0.9072 \text{ metric tons} \times 27 = 24.4944 \text{ metric tons}$
 $= 24494.4 \text{ K, Ans.}$

7. $0.9463 \text{ l} \times 15 \times 4 = 56.778 \text{ l.} \quad 56.778 \text{ K, Ans.}$

8. $28.317 \text{ cu dm} \times 7\frac{1}{2} \times 3\frac{1}{2} \times 2\frac{1}{2} = 1705.116+ \text{ cu dm.}$
 $1705.116 \text{ cu dm} = 17.05116 \text{ Hl, Ans.}$

9. $0.4047 \times 10000 \text{ sq m} \times 16 = 64752 \text{ sq m, Ans.}$

10. $0.3524 \times 100 \text{ l} \times 5 = 176.2 \text{ l, Ans.}$

11. $\$0.22 \times 0.4536 = \0.099792 , what he sells it for a pound.

$\$9.9792 - \$8.50 = \$1.4792 \text{ gain, Ans.}$

12. $1.0567 \text{ qt.} \times 65 = 68.6855 \text{ qt.}$

$\$68.6855 - \$65 = \$3.6855 \text{ gain, Ans.}$

13. $0.9072 \text{ met. tons} \times 10 \times 3\frac{1}{2} = 10.16064 \text{ met. tons.}$

$\$65 \div 10.16064 = \$6.397+, \text{ Ans.}$

14. $1.6093 \text{ Km} \times 69\frac{1}{2} \times 12 = 1335.719 \text{ Km, Ans.}$

| BANK DISCOUNT. | | |
|-------------------------|--------------|--|
| Page 206-208. | | |
| Ans. without grace. | | |
| 3. { | \$ 172.92 | |
| | \$ 8473.08 | |
| 4. { | \$ 32.235 | |
| | \$ 1809.765 | |
| 5. { | \$ 12.225 | |
| | \$ 476.775 | |
| 6. { | \$ 7.86 | |
| | \$ 621.14 | |
| 8. { | \$ 6876.17 | |
| 10. { | \$ 304.58 | |
| 11. { | \$ 599.70 | |
| 12. { | \$ 1221.37 | |
| Miscellaneous Examples. | | |
| Page 207-208. | | |
| 13. { | \$ 15.32 | |
| 14. { | \$ 855.98 | |
| 15. { | \$ 860.03 | |
| 16. { | \$ 863.99 | |
| 17. { | \$ 313.10 | |
| 18. { | \$ 1113.91 | |
| 19. { | \$ 762.75 | |
| 20. { | \$ 345.66 | |
| 21. { | \$ 2880.18 | |
| 22. { | \$ 283.69 | |
| 23. { | \$ 128.95 | |
| 24. { | \$ 461.49 | |
| 25. { | \$ 2470 | |
| 26. { | \$ 904.50 | |
| 27. { | \$ 996.13 | |
| 28. { | \$ 1007.43 | |
| 29. { | \$ 1026.94 | |
| 30. { | \$ 1056.78 | |
| 31. { | \$ 152.52 | |
| 32. { | \$ 321.63 | |
| 34. { | \$ 75.76 | |
| Page 228. | | |
| 12. { | \$ 378.23 or | |
| | \$ 378.41 | |
| 14. { | \$ 331.68 | |
| 15. { | \$ 793.91 | |
| 16. { | \$ 1378 | |
| Page 309-311. | | |
| 383. { | \$ 8.25 | |
| | \$ 631.75 | |
| 384. { | \$ 2.63 | |
| | \$ 284.87 | |
| 385. { | \$ 4.79 | |
| | \$ 181.96 | |
| 386. { | \$ 5.21 | |
| | \$ 619.79 | |
| 387. { | \$ 2.40 | |
| | \$ 597.60 | |
| 388. { | \$ 2.92 | |
| | \$ 497.08 | |
| 389. { | \$ 4.23 | |
| | \$ 841.77 | |
| 390. { | \$ 11.33 | |
| | \$ 744.31 | |
| 391. { | \$ 9.73 | |
| | \$ 407.40 | |
| 392. { | \$ 8.31 | |
| | \$ 631.19 | |
| 393. { | \$ 25 | |
| | \$ 2475. | |
| 394. { | \$ 1.17 | |
| | \$ 198.83 | |
| 395. { | \$ 465.89 | |
| 396. { | \$ 25.91 | |
| 397. { | \$ 408.48 | |
| 398. { | \$ 563 | |
| 399. { | \$ 964.90 | |
| 400. { | \$ 775.46 | |
| 401. { | \$ 615.89 | |
| 402. { | \$ 520.82 | |
| 403. { | \$ 2947.50 | |
| 404. { | \$ 1950.97 | |
| 405. { | \$ 691.95 | |
| 406. { | \$ 5653.08 | |
| 407. { | \$ 7405.34 | |
| 408. { | \$ 596 | |
| 409. { | \$ 304.06 | |
| 410. { | \$ 510.72 | |
| 411. { | \$ 686 | |
| 412. { | \$ 391.83 | |
| 413. { | \$ 0.04 | |
| 414. { | \$ 2.37 | |
| 415. { | \$ 18137.06 | |
| 416. { | \$ 1010.10 | |
| 417. { | \$ 510.29 | |
| 418. { | \$ 76649.24 | |
| 419. { | \$ 101.01 | |
| 420. { | \$ 307.48 | |
| 421. { | \$ 365.48 | |
| 422. { | \$ 508.91 | |
| 423. { | \$ 653.06 | |
| 424. { | \$ 546.37 | |
| 425. { | \$ 682.85 | |
| 426. { | \$ 34401.35 | |
| 427. { | \$ 999.38 | |
| 428. { | \$ 1581.63 | |
| 429. { | \$ 465.52 | |
| 430. { | \$ 101.52 | |

PARTIAL PAYMENTS.

Vermont Interest Method.

Page 376f-376g.

(4.)

| | |
|---|-----------------------|
| Amount of \$ 400, Aug. 12, 1891, to Oct. 12, 1892 . | \$ 428.00 |
| Payment Oct. 12, 1892 | 60.00 |
| New principal | <u>\$ 368.00</u> |
| Amount of \$ 368, Oct. 12, 1892, to Feb. 1, 1893 . | \$ 374.75 |
| Payment Feb. 1, 1893 | 16.00 |
| New principal | <u>\$ 358.75</u> |
| Amount of \$ 358.75, Feb. 1, 1893, to Sept. 13, | |
| 1894 | Ans. <u>\$ 393.55</u> |

(5.)

| | |
|--|-----------------------|
| Principal | \$ 725.00 |
| Annual interest due June 10, 1894 . . | 43.50 |
| Amount | <u>\$ 768.50</u> |
| Amount of \$ 50, Dec. 1, 1893, to June 10, | |
| 1894 | \$ 51.58 |
| Amount of \$ 75, May 20, 1894, to June | |
| 10, 1894 | <u>75.26</u> |
| Amount due June 10, 1894 | <u>\$ 641.66</u> |
| Annual interest of \$ 641.66, due June 10, | |
| 1895 | 38.50 |
| Amount | <u>\$ 680.16</u> |
| Amount of \$ 100, April 15, 1895, to June | |
| 10, 1895 | 100.93 |
| Amount due June 10, 1895 | <u>\$ 579.23</u> |
| Amount of \$ 579.23, June 10, 1895, to | |
| July 1, 1895 | Ans. <u>\$ 581.26</u> |

(6.)

| | |
|--|------------------|
| Principal | \$ 625.50 |
| Annual interest due Oct. 1, 1895 . . . | 37.53 |
| Amount | <u>\$ 663.03</u> |

| | | |
|---|----------|------------------|
| Brought forward | | \$663.03 |
| Amount of \$ 200, Jan. 1, 1895, to Oct. 1, 1895 | | 209.00 |
| Amount due Oct. 1, 1895 | | <u>\$ 454.03</u> |
| Interest of \$ 454.03, Oct. 1, 1895, to May 1, 1896 | | 15.89 |
| Amount | | <u>\$ 469.92</u> |
| Amount of \$ 20, Nov. 1, 1895, to May 1, 1896 | \$ 20.60 | |
| Amount of \$ 300, Jan. 1, 1896, to May 1, 1896 | 306.00 | 326.60 |
| Amount due May 1, 1896 | Ans. | <u>\$ 143.32</u> |

(7.)

| | | |
|--|------------------|-------------------|
| Interest due on principal annually, \$ 300. | | |
| Principal | | \$ 5000.00 |
| Interest due July 1, 1890 | \$ 618.00 | |
| Amount of \$ 500, Jan. 1, 1890, to July 1, 1890 | 515.00 | |
| Balance of interest due July 1, 1890 | <u>\$ 103.00</u> | |
| Annual interest due July 1, 1891 | 300.00 | |
| Interest of \$ 103, July 1, 1890, to July 1, 1891 | 6.18 | |
| Interest due July 1, 1891 | <u>\$ 409.18</u> | |
| Amount of \$ 400, March 1, 1891, to July 1, 1891 | 408.00 | |
| Balance of interest due July 1, 1891 | <u>\$ 1.18</u> | |
| Annual interest due July 1, 1892 | 300.00 | |
| Interest of \$ 1.18, July 1, 1891, to July 1, 1892 | 0.07 | |
| Interest due July 1, 1892 (less than payment) | | 301.25 |
| Amount | | <u>\$ 5301.25</u> |
| Amount of \$ 1000, Jan. 1, 1892, to July 1, 1892 | | 1030.00 |
| Amount due July 1, 1892 | | <u>\$ 4271.25</u> |

| | |
|--|------------------------|
| Brought forward | \$ 4271.25 |
| Interest of \$ 4271.25, July 1, 1892, to July 1, 1893 | 256.28 |
| Amount | <u>\$ 4527.53</u> |
| Payment July 1, 1893 | 300.00 |
| Amount due July 1, 1893 | <u>\$ 4227.53</u> |
| Interest of \$ 4227.53, July 1, 1893, to July 1, 1895 | 522.52 |
| Amount due July 1, 1895 | Ans. <u>\$ 4750.05</u> |

(7, 2d part.)

| | |
|--|-------------------|
| Amount of \$ 5000, July 1, 1888, to Jan. 1, 1890 . | \$ 5450.00 |
| Payment Jan. 1, 1890 | 500.00 |
| New principal | <u>\$ 4950.00</u> |
| Amount of \$ 4950, Jan. 1, 1890, to March 1, 1891 . | <u>\$ 5296.50</u> |
| Payment March 1, 1891 | 400.00 |
| New principal | <u>\$ 4896.50</u> |
| Amount of \$ 4896.50, March 1, 1891, to Jan. 1, 1892 | <u>\$ 5141.33</u> |
| Payment Jan. 1, 1892 | 1000.00 |
| New principal | <u>\$ 4141.33</u> |

(The payment July 1, 1893, is less than the interest then due.)

| | |
|--|------------------------|
| Amount of \$ 4141.33, July 1, 1895 | \$ 5011.01 |
| Payment July 1, 1893 | 300.00 |
| Amount due July 1, 1895 | Ans. <u>\$ 4711.01</u> |

(8.)

| | |
|--|------------------|
| Principal | \$ 650.00 |
| Interest due Aug. 16, 1891 (\$ 78.00 + 1 year's interest of \$ 39.00) | 80.34 |
| Amount | <u>\$ 730.34</u> |
| Amount of \$ 120, Sept. 1, 1890, to Aug. 16, 1891 | \$ 126.90 |
| Amount of \$ 60, June 4, 1891, to Aug. 16, 1891 | 60.72 |
| Amount due Aug. 16, 1891 | <u>\$ 187.62</u> |
| | <u>\$ 542.72</u> |

| | |
|---|----------------------|
| Brought forward | \$ 542.72 |
| Interest due Aug. 16, 1894 (\$97.69 + \$5.86) | 103.55 |
| Amount | <u>\$ 646.27</u> |
| Amount of \$ 250, Sept. 23, 1893, to Aug. 16, 1894 | 263.50 |
| Amount due August 16, 1894 | <u>\$ 382.77</u> |
| Interest of \$ 382.77, Aug. 16, 1894, to Aug. 16, 1895 | 22.97 |
| Amount | <u>\$ 405.74</u> |
| Payment Aug. 16, 1895 | 350.00 |
| Amount due Aug. 16, 1895 | <u>\$ 55.74</u> |
| Interest of \$ 55.74, Aug. 16, 1895, to Dec. 1, 1895 | 0.98 |
| Amount due Dec. 1, 1895 | Ans. <u>\$ 56.72</u> |

(9, ANNUAL INTEREST.)

| | |
|--|------------------------|
| Principal | \$ 2000.00 |
| Annual interest Jan. 1, 1890, to Jan. 1, 1893 | 360.00 |
| Interest of \$ 120, Jan. 1, 1891, to Jan. 1, 1893 | 14.40 |
| Interest of \$ 120, Jan. 1, 1892, to Jan. 1, 1893 | 7.20 |
| Amount of \$ 500, July 1, 1892, to Jan. 1, 1893 | <u>\$ 2381.60</u> |
| Amount due Jan. 1, 1893 | <u>515.00</u> |
| Amount due Jan. 1, 1893 | <u>\$ 1866.60</u> |
| Interest due Jan. 1, 1894 | \$ 112.00 |
| Amount of \$ 50 to Jan. 1, 1894 | <u>50.75</u> |
| Balance of interest due Jan. 1, 1894 | 61.25 |
| Interest on \$61.25 to Jan. 1, 1896 | 7.35 |
| Annual interest Jan. 1, 1894, to Jan. 1, 1895 | 112.00 |
| Interest on \$ 112, Jan. 1, 1895, to Jan. 1, 1896 | 6.72 |
| Annual interest Jan. 1, 1895, to Jan. 1, 1896 | 112.00 |
| Amount due Jan. 1, 1896 | Ans. <u>\$ 2165.92</u> |

(9, SIMPLE INTEREST.)

| | |
|--|-------------------|
| Amount of \$ 2000, Jan. 1, 1890, to July 1, 1892 | \$ 2300.00 |
| Payment July 1, 1892 | 500.00 |
| New principal | <u>\$ 1800.00</u> |

(The payment Oct. 1, 1893, is less than the interest then due.)

| | |
|--|------------------------|
| Amount of \$ 1800, July 1, 1892, to Jan. 1, 1896 | \$ 2178.00 |
| Payment Oct. 1, 1893 | 50.00 |
| Amount due Jan. 1, 1896 | <u>Ans. \$ 2128.00</u> |

(10.)

| | |
|---------------------|-----------|
| Principal | \$ 300.00 |
|---------------------|-----------|

Annual interest due June 16, 1892,

\$ 18, paid.

| | |
|---|----------|
| Annual interest due June 16, 1894 | \$ 36.00 |
|---|----------|

Interest of \$ 18, June 16, 1893, to June

16, 1894 1.08

| | |
|--------------------------------------|-----------------|
| Interest due June 16, 1894 | <u>\$ 37.08</u> |
|--------------------------------------|-----------------|

Amount of \$ 20, Dec. 1, 1893, to June

16, 1894 20.65

\$ 16.43

Interest of \$ 16.43, June 16, 1894, to

June 16, 1895 0.99

Annual interest June 16, 1894, to June

16, 1895 18.00

35.42

| | |
|------------------|------------------|
| Amount | <u>\$ 335.42</u> |
|------------------|------------------|

Amount of \$ 50, June 4, 1895, to June

16, 1895 50.10

| | |
|------------------------------------|------------------|
| Amount due June 16, 1895 | <u>\$ 285.32</u> |
|------------------------------------|------------------|

Annual interest due June 16, 1895 17.12

Interest of \$ 17.12, June 16, 1895, to

Oct. 31, 1896 0.39

| | |
|---|------|
| Annual interest due Oct. 31, 1896 | 6.42 |
|---|------|

Amount due Oct. 31, 1896 Ans. \$ 309.25

(11.)

Principal \$ 1000.00

(The payment July 1, 1887, is less than the interest then due.)

Interest to Jan. 1, 1889 240.00

Amount due Jan. 1, 1889 \$ 1240.00

Sum of 1st and 2d payments 300.00

New principal \$ 940.00

(The payment Jan. 1, 1890, is less than the interest then due.)

Interest to July 1, 1890 84.60

\$ 1024.60

Sum of 3d and 4th payments 90.00

\$ 934.60

Interest to Jan. 1, 1895 252.34

Amount due Jan. 1, 1895 Ans. \$ 1186.94

TAXES.

Page 376k-376l.

(1.)

\$ 2 × 457 \$ 914.00

1% of \$ 327710 3277.10

1% of \$ 80423 804.23

Grand List \$ 4995.33

Poll \$ 2.00

1% of \$ 4000 40.00

1% of \$ 1064 10.64

Grand List \$ 52.64

(2.)

\$ 1800 - \$ 400 = \$ 1400

Poll \$ 2

1% of \$ 4500 45

1% of \$ 1400 14

Grand List \$ 61

\$ 61 × 0.70 = \$ 42.70, tax.

